COTTON

Volume 83
Number Five
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MARCH, 1919

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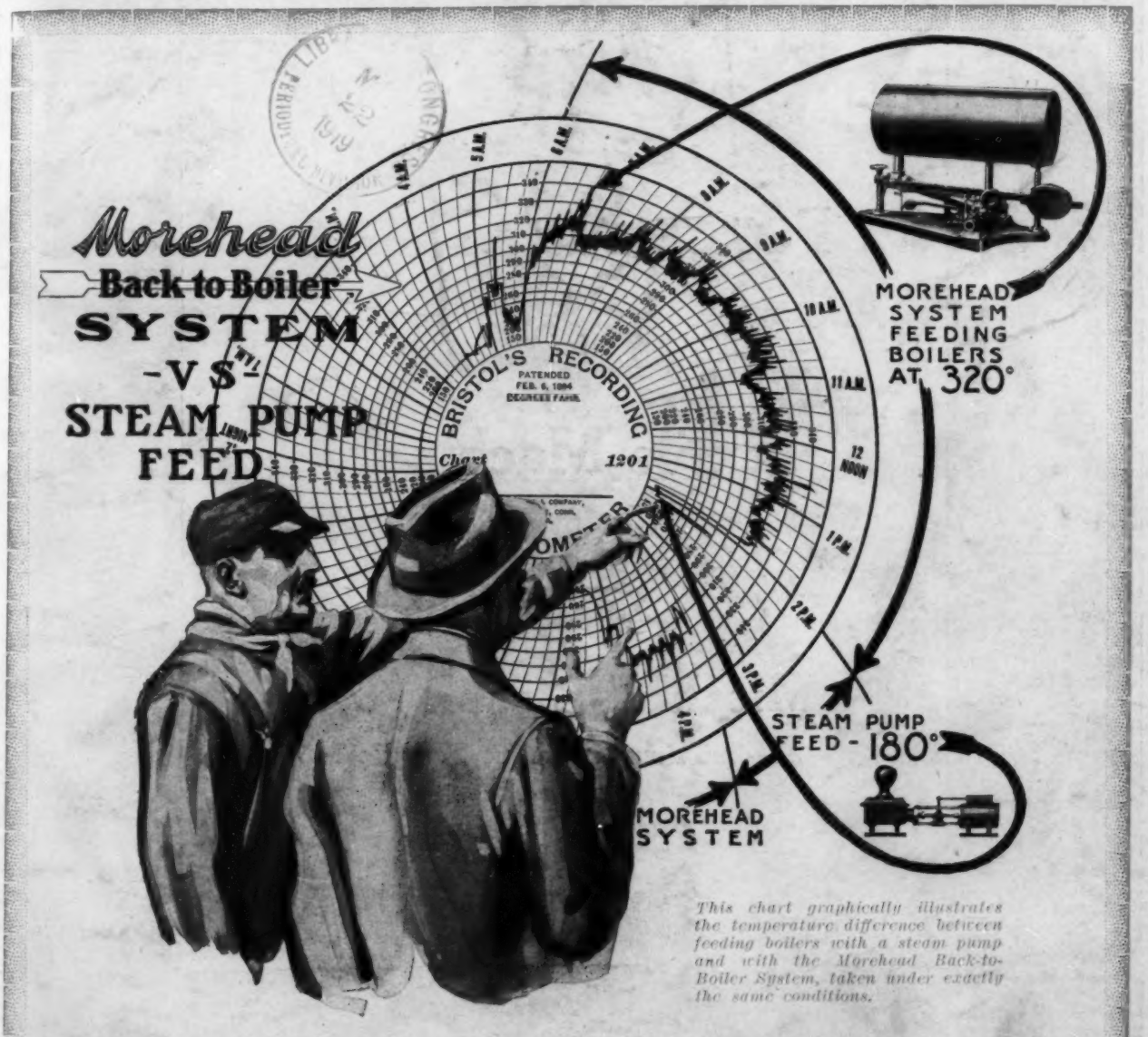


This chart graphically illustrates the temperature difference between feeding boilers with a steam pump and with the Morehead Back-to-Boiler System, taken under exactly the same conditions.

NOTE the drop in temperature of the returns from the steam lines—shown in the chart—when the boiler is fed with an ordinary steam pump.

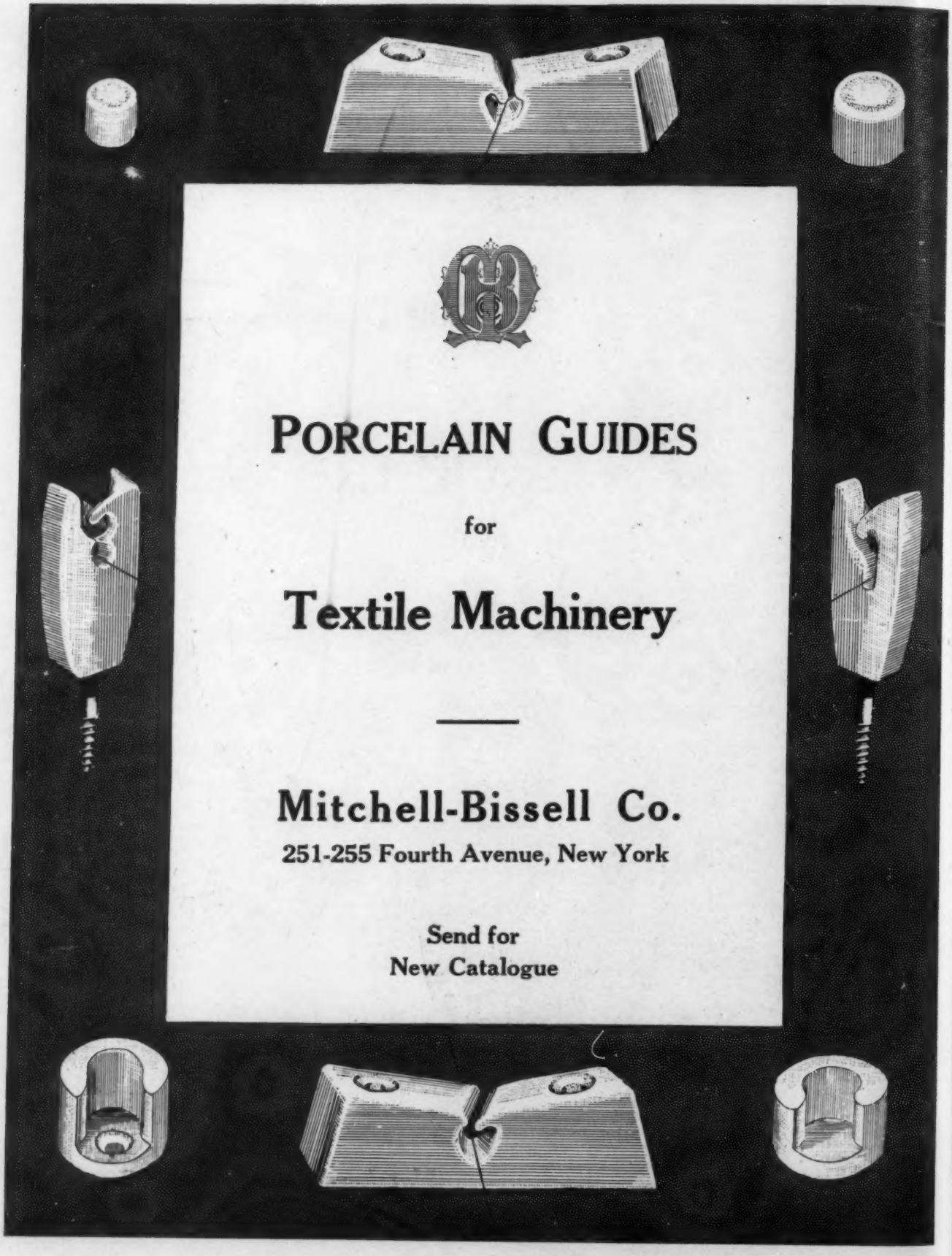
Then when the Morehead Back-to-Boiler System is placed in operation, note the steady increase in temperature—which, of course, results in a tremendous fuel saving, frequently as much as 20 per cent—and increased efficiency of steam heated equipment.

Steam pump feed is extravagant because the water of condensation must be allowed to cool down to 212 degrees before the pump can handle it.

With the Morehead System, the water can be returned **immediately** to the boilers at from 275 to 312 degrees—and a gain of one per cent of fuel for every ten degrees increase in heat. Let us send you our catalog and complete information.

Morehead Manufacturing Co.

DETROIT . . . . . MICHIGAN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for
Textile Machinery
Mitchell-Bissell Co.
251-255 Fourth Avenue, New York
Send for
New Catalogue

Labor Development
Loom Efficiency
and
Pay Roll Conservation

are all provided by the use of

NORTHROP LOOMS

TRADE-MARK

which may be operated
by Weavers of less experience
turning out under certain conditions
100 per cent. or more of theoretical mill-time product

AND

Better goods
at a saving of 50 to 75 per cent.
of the labor cost of weaving
compared with common looms

DRAPER CORPORATION

HOPEDALE MASSACHUSETTS

Southern Office
188 South Forsyth Street Atlanta Ga

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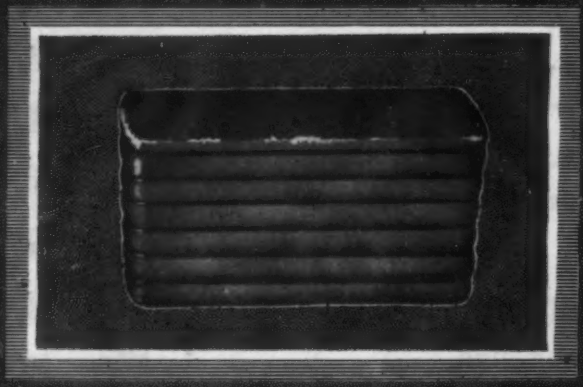
56 Pounds PER CU. FT.

HIGH DENSITY BALING PRESS



CUMMINGS' New Patent Horizontal High Density Baling Press produces a cotton bale of 56 lbs. to the cubic foot, which in dimensions is 2½ times smaller than the average cotton bale obtained by the methods now in general use.

It must be obvious to every interested person that the saving is enormous. Also, it is evident that the quality of staple is greatly improved, resulting in a better price as well as a better product.

We will be glad to confer with those who feel an interest in the future of America's cotton exports, giving them the benefit of our long experience in high density baling.

Illustrated catalogue and full information on request.

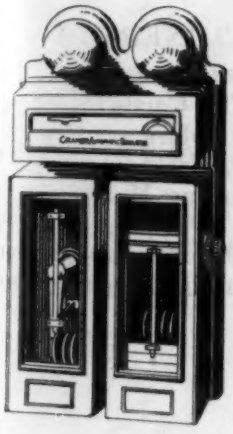
W. D. CRUMPTON

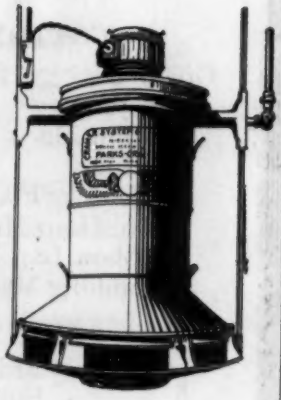
AMERICAN REPRESENTATIVE

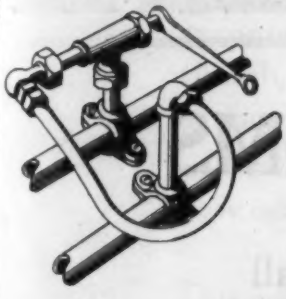
29 BROADWAY NEW YORK, N. Y.

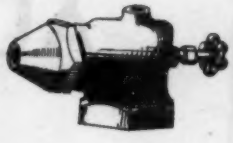
DAVID BRIDGE & CO. — MANCHESTER, ENG.

Originality in Humidifying









PARKS and CRAMER entered the humidifying field only eleven and twelve years ago, respectively. Here are some of the original things they accomplished individually:

A spray type of humidifier that could be cleaned—the first in the field. A spray type of humidifier made of copper—that would last a lifetime. Also first in the field.

A spray type of humidifier of the fan type—or heavy duty—as we call it. Another original contribution to the art. More pounds of humidity for the dollar, either of investment or operating.

Automatic—and positive—regulation of humidity. The first in the field.

The Turbo humidifier—a compressed air humidifier. Unique in features of interchangeability, durability and economy. It was the means of reviving to popular mill use—what might be termed a lost art.

Turbo ring construction—a novel use of the cluster idea—using posts as center—and eliminating all overhead piping. Originality again. Patented but coveted. Standardization of compressed air cleaning apparatus—making use of the by-product.

The Turbo Oil Sprayer. Just a big Turbo Humidifier that is adapted to spraying oil instead of water. Also used as an Oil Burner.

All this originality was developed under less favorable conditions than now exist. By the joining of two engineering staffs, more will surely result. The last word has not been said—in humidifying apparatus. No claim is made for superlative perfection. What we do claim is an originality that has marked a progress in the art—and a benefit to the textile trade in which every buyer of humidifying apparatus benefits.

Parks-Cramer Company

Successor to

The G. M. Parks Company Stuart W. Cramer

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ESTABLISHED 1831

TEXTILE MACHINERY

Manufacturers of the Following Machines

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Opening
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Silver Lap Machines
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Card Feeds
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Condensers
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SOUTHERN OFFICE CHARLOTTE N.C.

AUTOMATIC LOOMS

We make automatic looms for all manner of textile fabrics. Plain or fancy, coarse or fine.

The product of these looms is unsurpassed in quality and the cost of weaving shows wonderful savings.

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The Stafford Company

Readville, Mass.

"IDEAL"

J. H. Mayes, Southern Agent, 1112 Independence Building, Charlotte, N. C.

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DEAD METAL

IS NOT what you get when you invest in any of the Sturtevant products. Sixty years of live, energetic, scientific Engineering experience have changed this cold medium to the most efficient line of

Fans—Blowers—Engines—Turbines—Power Plant Equipment

possible to produce.

Sturtevant has always meant **QUALITY** and no one has ever disputed this, because of our Scientific methods of manufacture.

Our results have been assured by the retaining of the Finest Engineering Staff we could find. These men analyze every application of Sturtevant apparatus and their recommendations are given, not by guess, or rule-of-thumb, but by exactitude from scientific knowledge. You are not asked to gamble, but to invest in results.

In harmony with Sturtevant progressiveness, we have now added a

SERVICE DEPARTMENT.

This assures satisfaction to you from the placing of your order to the actual operation of your machine. This department will adjust any dissatisfaction

REGARDLESS OF THE CAUSE,

This is your

INSURANCE against DISSATISFACTION.

For your convenience and protection, we have Branch Offices, with Sturtevant Engineers, in all principal cities.

B. F. STURTEVANT COMPANY,

BOSTON, MASS., U. S. A.

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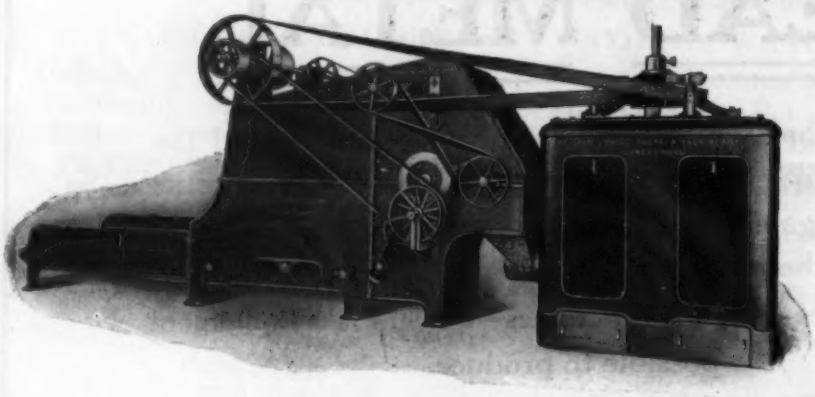
SACO-LOWELL SHOPS

TEXTILE MACHINERY



OPENING
EQUIPMENT
INCLUDING
Vertical Openers
WITH
BALE BREAKERS
ATTACHED

SHOPS

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EXECUTIVE OFFICES
BOSTON, MASS.

ROGERS W. DAVIS, Southern Agent, CHARLOTTE, N. C.
BRANCH OFFICE, GREENVILLE, S. C.

Thacker Warp Stop Motion Frame

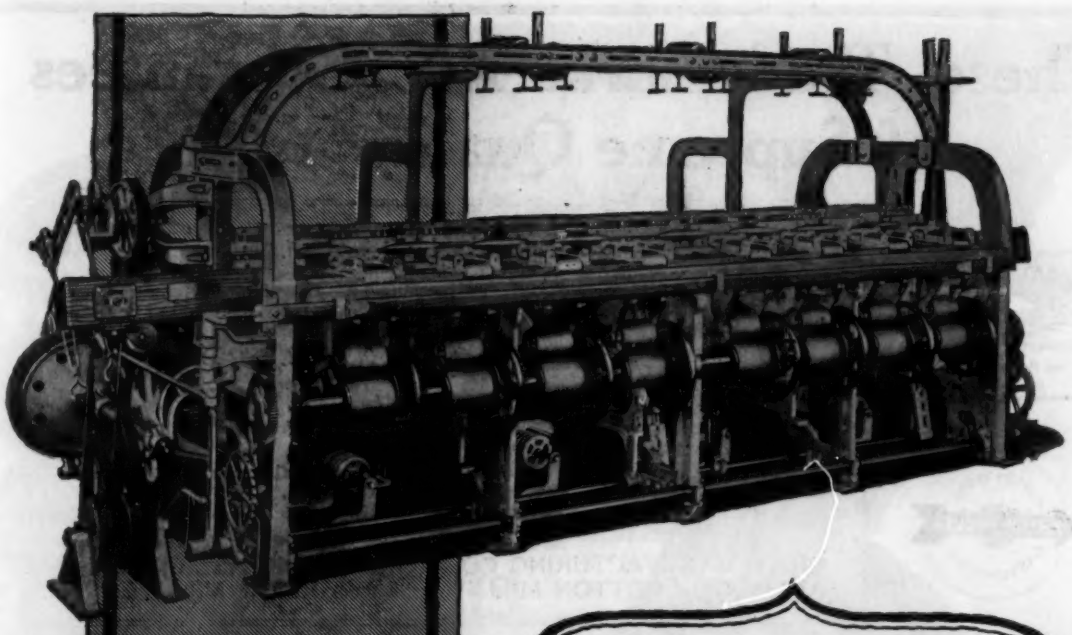
Attachment used whereby open drop wires can be drawn in at frame and transferred to loom as readily and safely as are the closed drop wires

Crompton & Knowles Loom Works

Worcester, Mass.

Providence, R. I. Philadelphia, Pa. Paterson, N. J.

Southern Representatives—Alexander & Garsed, Charlotte, N. C.



MEDIUM WEB LOOM—

This loom covers the requirements for webbing and asbestos brake-linings —weaving up to 3 inches in width, 8 spaces, 10 feet 6 inches between frames, 9 harness frames. One operator takes care of two of these looms.

Write for further information about looms for weaving all narrow fabrics.

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Formerly Schaum & Uhlinger

Glenwood Ave. and Second Street

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These Trademarks Are Guarantees of Supreme Quality Yarn

IN selecting yarns, always look for the trade-mark and if any of the marks shown here appear on the yarn you are safe—safe in the knowledge that that yarn is the highest quality that you can purchase.

These trademarks are guarantees to you—1st—Selection of the best long Staple Cotton. 2nd—Spinning yarns of the highest type. 3rd—Inspection and packing of shipments. 4th—Careful service and attention to your inquiries.

It is our constant endeavor to render helpful service to our clientele in the selection of proper counts, prompt delivery of orders, etc. We solicit your valued inquiries on

Combed Peelers 30s to 80s, single and ply.
Combed Sea Island (gassed and ungassed) 30s to 80s, single and ply.
Carded Peelers, 40s, 50s and 60s.

Our Products are sold direct, exclusively through our General Sales Offices—131 East 23rd St., New York City.
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MYRTLE MILLS, Inc.
GRAY MANUFACTURING CO. PARKDALE MILLS, Inc,
ARLINGTON COTTON MILLS ARROW MILLS, Inc.

3 TYPES

① Underfeed Stokers
② Roney Stokers and
③ Chain Grate Stokers

THIS ENABLES US

Accurately to Meet the many and varied requirements in the vast field of stoker application

—Many varieties of coal must be burned

—The loads to be carried differ widely.

—Mother earth must be considered when foundation requirements come up.

—Headroom limitations often determine the type of boiler and stoker that *can* be installed.

—First cost is something always to be considered.

From the three types, a choice can be made to cover practically any requirement in stoker application. This also enables us more closely to meet your *individual* requirements. And further, after making recommmendations based on a careful study of your plant conditions and requirements, we can confidently leave the choice of type to you.

Westinghouse Electric & Manufacturing Co.,
East Pittsburgh, Pa.

We Can Leave the Choice of Type To You

Westinghouse

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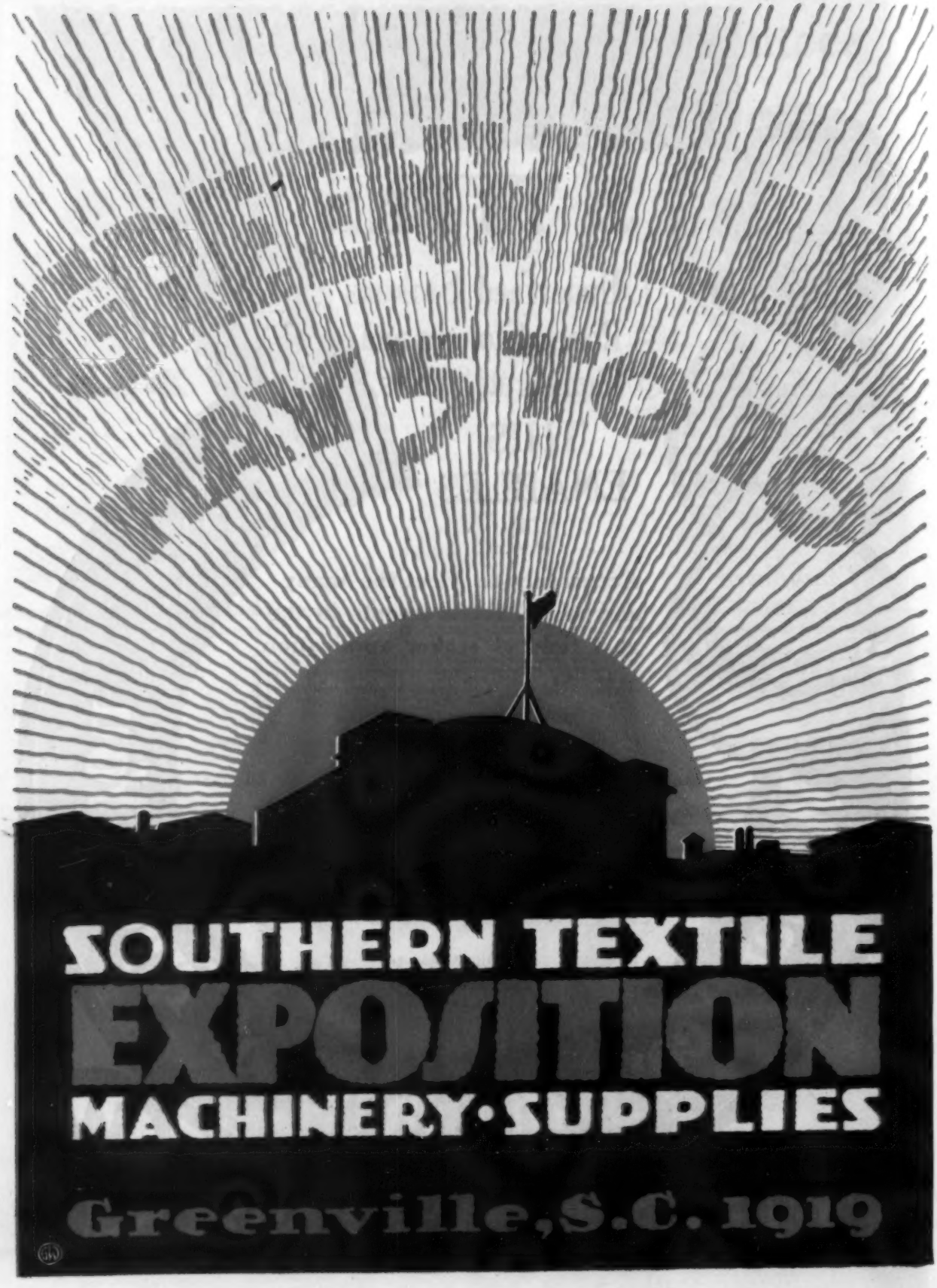
WESTINGHOUSE

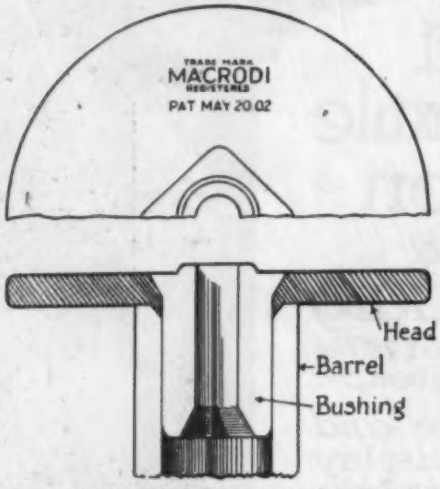

GREENVILLE
SOUTHERN TEXTILE
EXPOSITION
MACHINERY·SUPPLIES
Greenville, S.C. 1919

The 3rd
Southern Textile
Exposition
to be held
May 5th-10th, 1919
—is announced by the
Southern Textile Exposition, Inc.
A complete and
comprehensive display
of Machines, Supplies, Textile
Specialties and Fabrics of interest
to Manufacturers of Cotton Textiles
will be exhibited—
Full announcements and Regulations
just off the press
may be had by addressing
F. M. Burnett, Gen'l Manager
Southern Textile Exposition, Inc.
Greenville
South Carolina.
Our
Country
-first,
THEN
GREENVILLE

WHAT?

and the Answer—

To those not acquainted with the MACRODI FIBRE HEAD SPOOL, the question naturally arises what is this spool and what are its advantages.



This spool is a bushed spool with heads made from a specially prepared fibre and with a wooden barrel. The construction is patented.

Fourteen years of the hardest kind of mill use have absolutely demonstrated these features of the MACRODI FIBRE HEAD SPOOL.

DURABILITY—As the fibre heads are made from a specially prepared fibre which has no grain to it, as has wood, these heads will not chip, break, crack or warp. Consequently this spool is much more durable than the ordinary wooden spool.

ECONOMY—Scores of mill men have demonstrated to their own satisfaction that this spool saves them not only in actual spool breakage, but also in the attendant loss of yarn. The value of broken spools—as you know—is much less than the value of the yarn lost through broken spools. Careful figures kept over a period of years by some of the largest mills prove these facts beyond question.

ADDED TRAVERSE—The most radical feature of this spool is the added traverse made possible on account of the difference in thickness between the fibre heads and the heads of the ordinary wooden spool. The fibre heads are only one-quarter of an inch in thickness whereas the wooden heads are generally one-half inch in thickness. This difference in thickness may be added to the traverse of the MACRODI FIBRE HEAD SPOOL, giving you one-half inch longer traverse than on the wooden spool of the same length. To illustrate:—a wooden spool with 5" traverse is 6" over all, whereas the MACRODI FIBRE HEAD SPOOL 6" over all would have a 5½" traverse. This extra one-half inch traverse allows you to wind 10% more yarn on the MACRODI FIBRE HEAD SPOOL with 5½" traverse than on the wooden spool of corresponding outside dimensions. This added traverse means increased yardage, and often another wrap on the beam. Progressive mill men have found that the added traverse has enabled them to materially cut costs.

The operatives prefer the MACRODI FIBRE HEAD SPOOL as the heads are very smooth on the inside and the yarn does not catch or break in spooling and warping.

The economy and durability of the MACRODI FIBRE HEAD SPOOL, and the advantages of the increased traverse are facts proved to the satisfaction of hundreds of mill men throughout this country.

DELIVERIES—We made a specialty of prompt deliveries guaranteeing shipment in from two to four weeks after receipt of order.

Macrodi Fibre Co., Woonsocket, R. I.

MACRODI
Fibre Head Spools

Lower Labor Costs

The effect of Veeder Counters is to cut your labor cost per unit of output, by increasing the output per operator.

Put these counters on your machines—and you interest the operative in making a better showing than he ever thought necessary in the absence of real production-records.

You interest him in competing with his fellow operators; in doing what he can to get *more* out of his machine, as his skill and efficiency and value to the company are set forth by

Veeder COUNTERS

The Loom Pick Counter shown at right registers loom output in picks, in units of 100 or 1000, as ordered. Instrument shown counts up to 1,000,000 picks—then repeats.

This counter is intended to be driven by the crankshaft, and cannot be made to mislead employer or operator.

The above Loom Pick Counter [and the Hank Counter below] show in plain figures the exact amount of work done, saving mistakes and disputes.

The Hank Counter illustrated on the left records the output of machines where the product is ejected by rollers—such as Cards, Lappers, Combers, Twisters, Drawing, Roving, Ring Frames, Mules, etc.

Usually geared to record in hanks of 840 yards each.

Send for copy of the Veeder Textile Counter booklet describing in detail these and other special textile counters.

The Veeder Mfg. Co.

6 Sargeant Street Hartford, Conn.

A Comparison in Weighing Methods

The "Old Way" and "the Kron Way"

The above pictures show the old method and the modern method of weighing cotton as applied to a Southern warehouse.

Compare the Difference in Labor—With ***"the Old Way"*** there are three men engaged at the scale, with truckers waiting for their turn; whereas with ***"the Kron Way"*** there is only one man at the scale and the truckers are kept moving as fast as he can take down the weight.

Compare the Service Rendered—With ***"the Old Way"*** you will find the usual possibilities of errors and mistakes, which are entirely eliminated by ***"the Kron Way"*** because there are no loose weights or sliding poises to be handled and added together, as every load is indicated instantaneously on the Kron dial.

Compare the Difference in Cost—With ***"the Old Way"*** you have two more men on the platform than with ***"the Kron Way."*** Then there is the difference in time saved where truckers have to wait and where they are kept moving. The difference in cost can readily be figured, at the present rate of labor, showing a substantial saving when using Kron Scales.

The scale shown in the lower picture is the Kron Portable Cotton Bale Scale which has proven such a complete success because it withstands the roughest usage in the hardest service and can be wheeled about to any part of a plant, as desired.

Kron Scales are made in types and capacities to meet every requirement. Weighing on a Kron, all you have to do is to put the load on the platform and look at the dial.

"Load and Look"

Write for Complete Information

This applies to Every Industry—Every Commodity that has to be Weighed

AMERICAN KRON SCALE COMPANY

422 East 53rd St., New York

Branch Offices: Boston, Providence, Philadelphia, Pittsburgh, Baltimore, Chicago, Cleveland, Detroit, Minneapolis, San Francisco, Wilson, N. C.

Southern Office—405 Urban Bldg., Louisville, Ky. **Canadian Kron Scale Co., Montreal, Canada**

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Good Wrapping Paper Is A Business Getter

THE packages which you send out may be regarded as your representatives; they constitute points of contact between you and your customers. As in the case with your salesmen, you should expect your packages to make good impressions.

Neat packages wrapped in a high quality paper such as Ammonoosuc, will please your customer and create an attitude of confidence. He will know the same methods of neatness and efficiency are employed in your plant.

You take particular pains in filling "first orders," because you realize the psychological importance of "first impressions." Remember the wrapping paper is seen *first* on *every* delivery.

AMMONOOSUC

is especially made for textile mills requiring a QUALITY paper in every respect; contains 100% Sulphite; absolutely no ground wood or filler used in its manufacture. It is exceptionally strong and serviceable.

Made in White, Buff, Salmon, Green and Blue. From these you can select one which will make your package "stand out" and be recognized at sight. Ammonoosuc is manufactured in one of the oldest and best equipped mills in the country. Made in weight 24x36-40 pounds and heavier on machine trimming 144 inches.

We also manufacture other high grade papers, such as **A-MANILA; B-ENVELOPE MANILA; C-MANILA; OSCO FIBRE; K-FIBRE; OILED PAPERS; WAXED PAPERS.**

Are you proud of your product? Then wrap it in paper worthy of it. Samples, prices and name of nearest dealer sent on request.

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Paper and Pulp Mills, Groverton, N. H.

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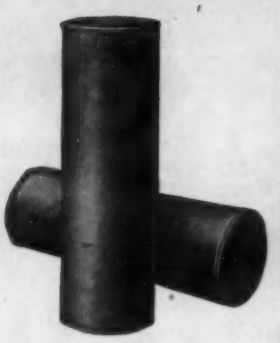

Buy These Staunch Roving Cans

Diamond-Fibre Roving Cans are built with the thoroughness and care of a steel conduit. They stand any slam-bang treatment that may come their way.

Diamond-Fibre

is tough as elephant's hide. It does not chip or peel. Diamond-Fibre Roving Cans have smooth insides. They are furnished in standard sizes, or can be made to your specifications. Two colors—red and gray.

Put in a few Diamond-Fibre Roving Cans on trial. Samples of Diamond-Fibre and full information will be sent on request.

F

Diamond-F

A Mark of Quality
A Sign of Service

Diamond State Fibre Company

Bridgeport, Pa. (Near Philadelphia)
Branches in Principal Cities

It Always Pays to Buy the Best

Leatheroid
MILL RECEPTACLES

Insure longest life under the roughest usage

because of their rugged construction. Constructed of the highest development in fibre, known as "Leatheroid," a tough, smooth, hard fibre that will not dent, crack or splinter.

"Leatheroid" No. 3 Mill Car.
Standard Sizes:
32 x 18 x 18 — 42 x 24 x 28
36x 24 x 24 — 48 x 30 x 30

Leatheroid Receptacles will prove best for service and for the standardization of your mill equipment.

Sold by the Leading Textile Supply Houses of the South

Write today for catalog of Leatheroid Mill Receptacles which includes Roving Cans, Doffing Cars, Trucks, Mill Boxes, Barrels, Baskets, etc.

Rogers Fibre Company
(Leatheroid Sales Division)
1024 Filbert Street, PHILADELPHIA, PA.

"Leatheroid" No. 1 Seamless Roving Can.
Patented "Leatheroid" rolled top, rolled in and under two and one-half times, having no steel rim underneath the roll to break the can. Solid steel bottom, steel chime, 6 in. kicking band. 10 x 36, 12 x 36.

Here's the Fan Wheel

That Has Made These Reversible Fans So Universally Successful in Cotton Mills

This fan wheel is the secret of the success of our reversible fans for conveying Cotton, Wool, Rags and Stringy Material of any kind.

This fan wheel is constructed with a cone-shape back of cast iron with sheet steel blades cast solid. Note the short overhang, which makes the fan run smoothly without vibration. This wheel offers less resistance to material passing through than any other wheel. It handles long, stringy material just as good as short material or lint.

And it's reversible.

The fan is built solid and runs without a tremor at maximum speed. No buckling of suction at high speed. No rivets to work loose. Universal adjustment of bearings, not simply up and down.

Made in any size, from 30 to 60 inch.

Folder R. F. explains fully. Ask for it today. Our catalogs No. 65 and 67 show complete line of fans and blowers for every class of work.

We have a large stock of repair parts which can be shipped at a moment's notice.

BUILT RIGHT RUN RIGHT

The New York Blower Co.

Main Office: Archer Ave. and Canal Street, CHICAGO, ILL.

Works: BUCYRUS, OHIO.

Leader-News Bldg. Cleveland, O. — Ridge Arcade Bldg. Kansas City, Mo. — 502 Plymouth Bldg. Minneapolis, Minn. — 303 B. F. Jones Bldg. Pittsburgh, Pa. — 370 Central Ave. East Orange, N. J.

E. C. Atkins Co., Memphis, Tenn., Southern Representatives.

FUN-FUL Playground Apparatus

will help you solve your labor, community and general reconstruction problems.

Our line includes Swings, Slides, See-Saws, Ocean Waves, Giant Strides, Outdoor Gymnasia, and all necessary Athletic Goods.

More than **Seventy-Five Southern Cotton Mills** have recently purchased "Fun-Ful" Apparatus. Ask them if it pays. We will send list of customers if desired.

Write for free catalog today.

HILL-STANDARD CO.,
1918 Fun-Ful Avenue, Anderson, Ind.

Edward Ferger,
Southern Representative, 276 Lucille Ave., Atlanta, Ga.

THE FUN-FUL LINE
PLAYGROUND EQUIPMENT

HARD COMMON SENSE SAYS

Discriminate between— { Low first cost / Low Ultimate cost

FIG. 27

If you use

LANE CANVAS BOXES, TRUCKS AND BASKETS

You are on the right track

W. T. Lane & Bro., Mfrs., Poughkeepsie, N.Y

The DICTAPHONE— for Letter-Writing

Its Simplicity Saves Money

Cotton is the most economical fabric; The Dictaphone is the most economical system of letter-writing.

Many leading cotton concerns have seen the value of the system that cuts the cost of each letter one-third.

Such concerns as the Seaboard Mills, Cannon Mills, Fulton Bag and Cotton Mills, Lorraine Mfg. Co., M. W. Dunton Co.

The Dictaphone gives large volume at low cost, because it's *scientifically simple*, mechanically perfect, dependable, quick, and easy to use.

15-Minute Demonstration

To convince yourself that The Dictaphone will reduce the cost of your letter-writing, phone or write today to The Dictaphone branch office nearest to you for a demonstration in *your* office, on *your* work.

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Registered in the U. S. and Foreign Countries

Dept. 137-C Woolworth Building, New York City

Branches Everywhere ***Write for booklet, "The Man at the Desk"***

There is but one Dictaphone, trade-marked "The Dictaphone," made and merchandised by the Columbia Graphophone Company

"The Shortest Route to the Mail-Chute"

Photograph of

Our Celebrated Coaster Slide

in Action

WE are the originators and patentees of the Wave Slide, patent No. 1239848. All persons are warned against purchasing other slides violating our patent. Write for our illustrated catalogue.

American Playground Device Company

AWARDED GOLD MEDAL PANAMA CALIFORNIA EXPOSITION 1915.

ANDERSON, IND.

Manufacturers of

PARK AND PLAYGROUND EQUIPMENT

PORCH AND LAWN FURNITURE

AGRICULTURAL, BABY CARRIAGE AND

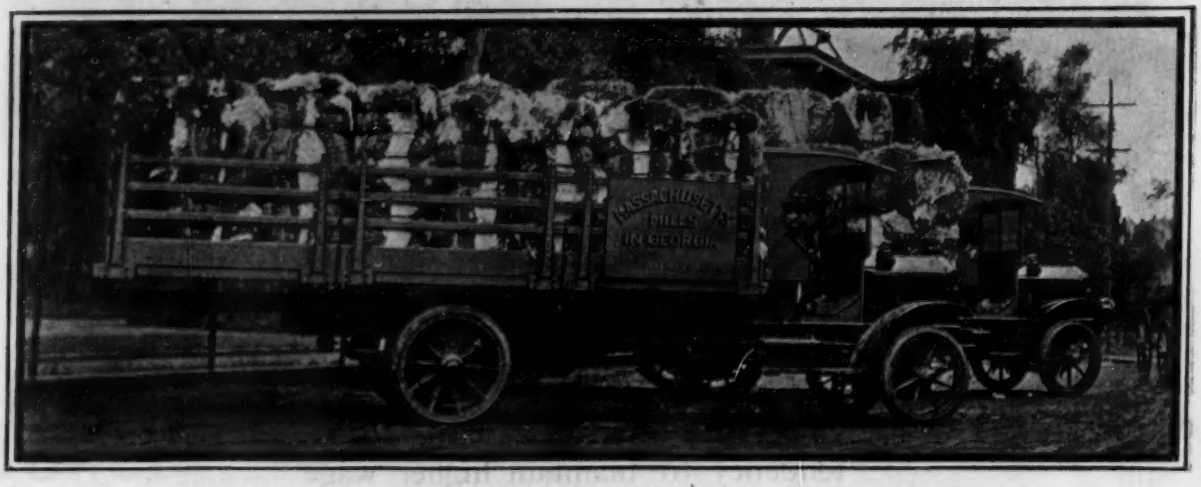
GO-CART WHEELS, STEEL AND RUBBER TIRE

Special Message to Southern Mills

Conserve your employees. Hasten your efficiency by giving First Aid on the spot. Substantial and complete equipment furnished by those who know how.

F. H. Thomas Company, 689-691 Boylston St., Boston, Mass.

White Trucks



THEY OPERATE THEIR OWN TRANSPORTATION LINE

GREATLY increased freight rates have resulted in many southern cotton manufacturers turning to the big-load, dependable motor truck for a solution of their short-haul problems.

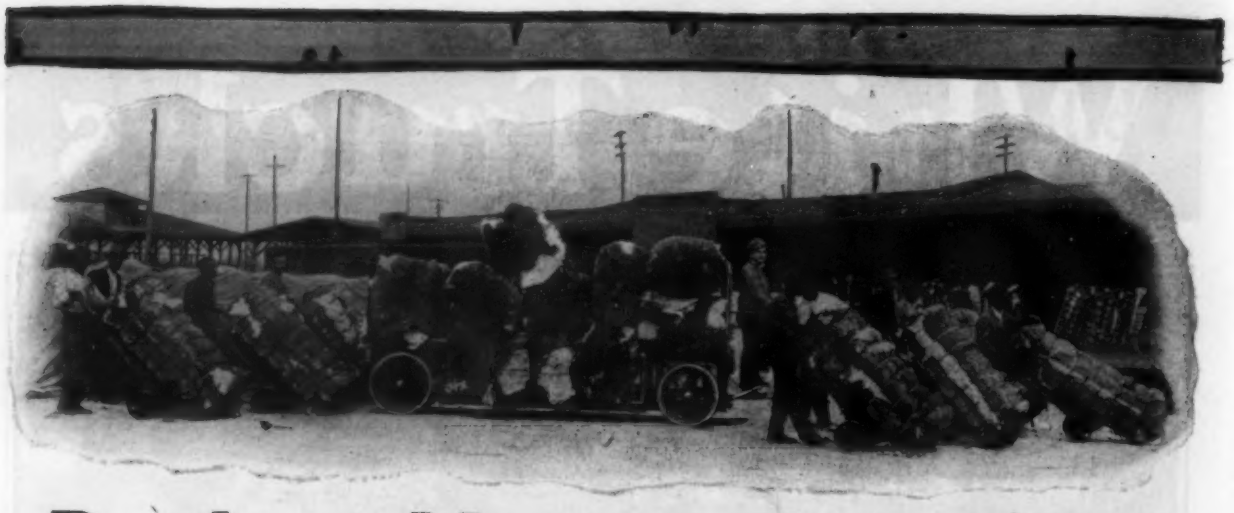
Among these are the Massachusetts Mills of Lindale, Georgia. These progressive manufacturers have purchased three 5-ton White Trucks and are operating them in hauling cotton from the warehouses in Rome to their mills, 5 miles distant. Each truck makes seven trips per day, carrying 14 bales of uncompressed or 22 bales of compressed cotton at a load.

Because of their speed, reliability and economy, White Trucks are proving more satisfactory short-haul carriers than the railroad, formerly employed.

White Trucks have the stamina

THE WHITE COMPANY
CLEVELAND

Largest Manufacturers of Commercial Motor Vehicles in America



Produce More at Less Cost

After-war competition will require a reduction in manufacturing costs if we hope to hold overseas trade. The tendency to maintain higher wage scales necessitates a greater production at less cost.

The electric industrial truck and one man will do the work of six to ten men with practically no effort. The loads are three to four times as large and the speed of transfer in the same proportion.

Less room is required for the electric than the hand truck. One of the electrics is loaded high and is gone, whereas five or six hand trucks monopolize the aisles often needed for other service.

The steady, silent, clean, safe electric is as necessary as the electric power motor that drives all modern textile machinery.

Thousands of E-P trucks are depended upon to link buildings and departments together in 96 industries. Twelve years experience in relieving factory congestion, lightening labor and reducing trucking costs is available on your request.

No load is too small to be handled by an electric for they travel three times as fast as a man walks.

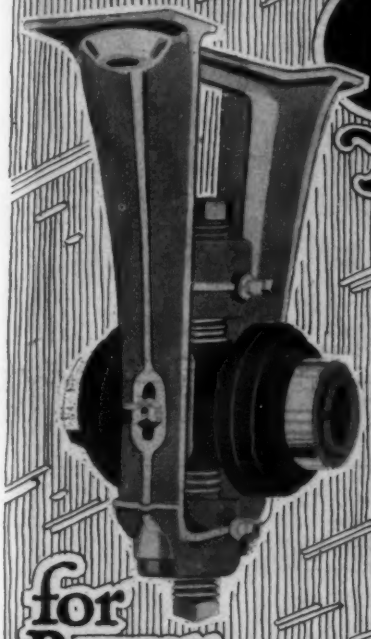
Both truck and tractors equipped with Lead or Edison Batteries.

The Elwell-Parker Electric Company

"Pioneer Builder of Electric Industrial Trucks."

CLEVELAND, OHIO.

Offices at Boston, Worcester, New York, Newark, Baltimore, Philadelphia, Washington, Richmond, Charlotte, Atlanta, Savannah, New Orleans, Pittsburgh, Buffalo, Detroit, Chicago, St. Louis, Kansas City, Denver, San Francisco, Seattle, Portland.



CHAPMAN
Type Ball Bearings
for Power Transmission

You Pay for Chapman Type Ball Bearings
Why Not Get Them?

If you are using babbitted bearings in your power transmission machinery, the power being lost through friction by these bearings would in two years' time pay for an installation of **Chapman Type Ball Bearings.**

Chapman Type Ball Bearings will fit your present hangers. There is no expense or delay of getting new ones. As these bearings lock onto the shaft by the compression of sleeve wedges, there is no possible chance for shaft cutting or wear, as there is no moving part in contact with the shaft.

Chapman Type Ball Bearings have been on the market for 16 years. During this time they have been adopted as standard equipment by nearly 4000 plants. Isn't this a strong recommendation in their favor!

The services of our engineers are at your disposal any time, to assist you in your transmission machinery problems.

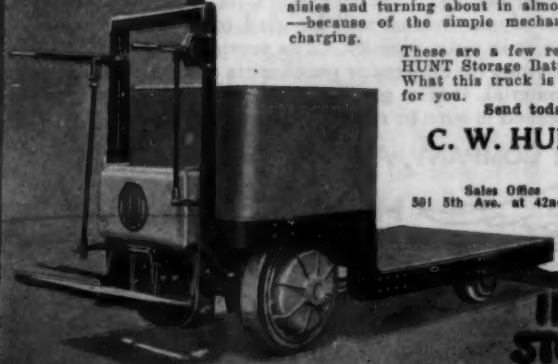
Have you a copy of Catalogue 3 M? Better get one if you haven't.

TRANSMISSION BALL BEARING CO., Inc.
1050 Military Road, Buffalo, N. Y.
New York, Philadelphia, Cleveland Chicago, Greenville, S. C., Cambridge, Mass.
The Chapman Double Ball Bearing Co.,
339-351 Sorauren Ave., Toronto, Ont.

The Correct Solution to the Inside Transportation Problem

THE problem is—"How can we move the greatest amount of our various materials at the greatest speed and at the least cost?" To solve this, just peep in at the method used by the leading manufacturers of the country. They all point to one answer—the Storage Battery Truck—The **HUNT.**

WHY—Because of their speed, capacity and labor saved.
—because they speed production by rushing goods that are finished with one department, to the next.
—because they have strong, dependable, clean power to carry several tons on the level or up grades, to all departments of the factory.
—because of their ease of operation and flexibility in moving through narrow aisles and turning about in almost their own length.
—because of the simple mechanism; few repairs and ease of recharging.



These are a few reasons why the largest mills use the HUNT Storage Battery Truck for inside transportation. What this truck is doing for other mills it can also do for you.

Send today for further information.

C. W. HUNT COMPANY, Inc.,
NEW YORK

Sales Office
501 5th Ave. at 42nd St.

Works and Executive Office
West New Brighton, N. Y.

Branch Sales Offices:
Chicago Washington
Boston Philadelphia

HUNT
INDUSTRIAL STORAGE BATTERY TRUCKS

Fourteen Months—Half-Hour Shifts—and the G.T.M.

They had never kept belt records in the Kentucky River Mills at Frankfort, Kentucky. They always bought expensive belts and took the price as proof of quality. They were troubled sometimes by the frequent need for belt repairs, by their belting bills and by low production—but they just accepted all these things as necessary evils. One July day in 1917, a G. T. M.—Goodyear Technical Man—called. It was our Mr. Jenkins.

He asked Mr. Sutherland, the superintendent, to show him the hardest drive in this particular mill. Mr. Sutherland wanted to know why. The G.T.M. explained the Goodyear plan of selling belts only after a careful analysis of the drives to be served—and not as if a given belt was like a patent medicine and a sure-cure for any and all ills that drives may entail.

The idea appealed and he was shown the spinning frame drive. It was a shift—every half-hour the belt was thrown from one driven pulley to its twin. There was one *quarter* turn and one *half* turn. He measured belt speed, centers, pulley diameters and pulley faces, asked about the power, and noted the nature of the load.

Then he prescribed a Goodyear Glide Belt—3½ inch 5 ply. Mr. Sutherland was interested. He asked the price. He found it was so moderate that he doubted the merit of the belt, but consented to try it. He didn't see where he could lose anything, and he might be able to get rid of constant interruptions and shut-downs.

The belt was applied August 16, 1917, and is still running. *Its edges are not even worn.* No stretch has had to be taken out. Production has never been interrupted a single minute. Fourteen months after being applied the belt seemed still as good as new.

These fourteen months of perfect service, in spite of shifts every half-hour, on that spinning frame drive, have converted them to the Goodyear plan of belt buying—and to Goodyear Belts. They have made the mill a Goodyear-belted- and G.T.M.-served mill—like thousands of others.

If you have a hard drive, and have always accepted high belting costs and belt-troubles as necessary evils, ask a G.T.M. to call. One from the nearest Goodyear branch will be glad to do so when next he is in your vicinity. His service is free—for the savings he effects for purchasers are so evident and material, that a gratifying volume from the plants served is sure to result within a few years.

THE GOODYEAR TIRE & RUBBER COMPANY, AKRON, OHIO

BELTING · PACKING · HOSE · VALVES

GOODYEAR

AKRON

COCHECO

BELTING

Of course Cocheco Belting wears out, finally, but here's an example of what it does first. A certain well known steel company in particular need of dependable belting purchased a 30-inch double Cocheco Belt and started it going. The belt ran constantly year in, year out, until it had piled up 24 years of continuous service. Then it had to be replaced—and the order went out for a duplicate of the belt that had lasted close to a quarter of a century.

For 75 years "Cocheco" has been recognized as the ultimate in belt quality. It has stood the tests of time and service. It is every inch backbone center stock, extra heavy leather, pure oak tanned.

No belting made is sold any closer to cost, or is more economical to use than "Cocheco." Cocheco Belting is guaranteed, absolutely. Let us tell you more about it.

COCHECO

BELTING

Quality Belting Since 1842

I. B. Williams & Sons

DOVER, NEW HAMPSHIRE

NEW YORK CHICAGO BOSTON

2300 Looms—all Driven by Link-Belt Silent Chain Drives

WHEN the Lanett Cotton Mills, of West Point, Ga., erected their new weave shed and equipped it with 2,300 looms and 83,000 spindles, naturally the question of power transmission was of vital importance.

It was realized that the power requirements of these three acres of looms would be more or less intermittent. If driven by belts, it meant frequent belt slippage, loss of power, reduced machine efficiency and reduction in output.

Consequently one of the foremost cotton mill Engineers of the South, who was retained by the Lanett Company as Consulting Engineer, advised the use of Link-Belt Silent Chain Drives.

These drives operate line shafting under the weave room floor. They insure a uniform, constant line shaft speed throughout the entire room. There is no slippage in transmission as with leather belts. And yet, in spite of their positive action, Link-Belt Silent Chain Drives are elastic enough to cushion loads and protect the driving medium. They are "Positive as a Gear, Flexible as a Belt, more Efficient than Either". Actual tests have proven them 98.2% efficient.

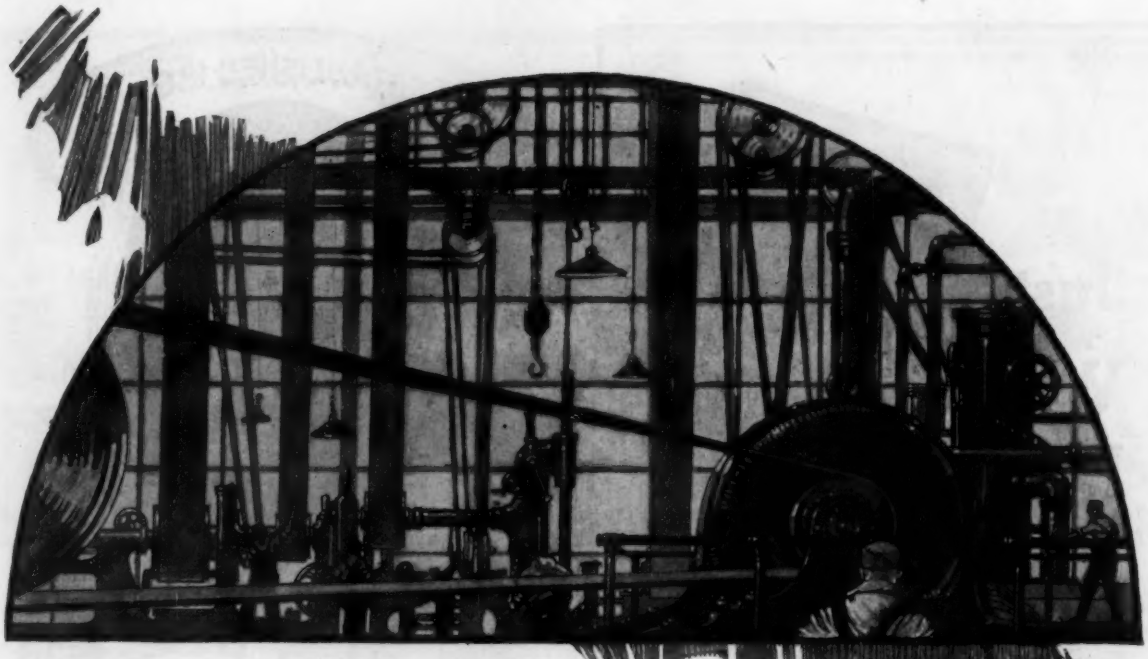
Our Book No. 258 showing many textile mill installations and giving details will be gladly mailed on request.

LINK-BELT COMPANY

PHILADELPHIA		CHICAGO		INDIANAPOLIS
New York	299 Broadway	Kansas City, Mo.	306 Elmhurst Bldg.	
Boston	49 Federal St.	Seattle	576 First Avenue, S.	
Pittsburgh	1501 Park Bldg.	Portland, Ore.	First and Stark Sts.	
St. Louis	Gen'l Nat'l Bank Bldg.	San Francisco	582 Market St.	
Wilkes-Barre	24 Nat'l Bank Bldg.	Los Angeles	163 N. Los Angeles St.	
Cleveland	420 Rockefeller Bldg.	Toronto, Can.	Canadian Link-Belt Co., Ltd.	
Detroit	723 Dime Bank Bldg.	Denver	Lindrooth, Shubart & Co., Boston Bldg.	
Minneapolis	419 S. Third St.	New Orleans	C. O. Hine, Hibernia Bank Bldg.	
Charlotte, N. C.		J. S. Cothran, Gen'l Bank Bldg.		

185

LINK-BELT SILENT CHAIN DRIVES



BUYING Belting at Half the Cost is NOT Buying "Power Transmission at Half the Cost"

Don't be misled by a confusion of terms. "Belting" is a means—"power transmission" is an end. The end attained depends upon the means employed.

There's a big difference between "cheap" belting and "cheap" power transmission—a difference that reveals itself sooner or later on the wrong side of the ledger.

While you're figuring how much you could save *in first cost* by buying belting at half the price of good leather belting, *don't forget to figure also the cost of the power you'll waste, the cost of belt repairs and adjustments, the cost of labor idle while belt troubles are being corrected, the value of product lost in curtailed output due to belting troubles.*

Distinguish clearly between "price" and "cost." Study how the *price of belting* affects the *cost of power transmission.*

If all you want is to "keep the wheels turning," buy cheap belting—frequently.

But if you want to get the most power from every pound of coal, the most productive effort from your labor, the biggest output of your product, with the lowest cost per horse-power per year delivered at your machines, over the longest period, use high-grade leather belting.

And if you want concrete evidence that good leather belting, regardless of price, *costs least*, here it is:—

Ladew's famous "Centennial" Leather Belt, installed in 1877 and still carrying its load, has done its work at a total cost to date—including amortization of first cost—of 18 cents per horse-power per year.

EDW. R. LADEW CO., INC.
GLEN COVE, NEW YORK, U.S.A.

Since 1835
Branches and Agents in All Principal Cities of the World.

Just What I've Wanted

S what you are sure to exclaim, after you look through our Bulletin, "Lubrication of Textile Machinery," second edition—fresh from the press.

From cover to cover it is crammed full of the kind of information that has a direct bearing on securing maximum output and service from machinery at minimum cost for maintenance and upkeep.

Instead of distributing this publication indiscriminately we want to be sure to place it only in the hands of those who are interested. We have reserved a copy for you. Please sign and mail coupon below. Your doing so will place you under no obligation.

New York and New Jersey Lubricant Co.

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Branches, Atlanta, Ga., Charlotte, N. C.

Lewis W. Thomason, District Mgr., Charlotte, N. C.

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Iron Body, Bronze Mounted

Globe, Angle and Cross Valves

These valves give lasting satisfaction in service—a fact vouched for by users everywhere. Their extreme strength and durability, due to high quality materials and correct design, is a source of economy in plant maintenance.

Lunkenheimer "Valve-iron" was formulated especially for valve service; it is close grained, has high tensile strength and does not contain the excess of impurities common in ordinary grades of cast iron. The high grade bronze used for the trimmings has excellent wearing or bearing qualities in addition to high tensile strength.

Constant checking of the mixture by our laboratory division and careful tests and inspections before and after assembling, maintains the high standard by which Lunkenheimer valves are distinguished.

Specify "Lunkenheimer" and insist on having the genuine. Your local dealer can supply you; if not, write us.

Write for descriptive literature.

THE LUNKENHEIMER CO.
"QUALITY"

Largest Manufacturers of High Grade Engineering Specialties in the World.

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Chicago London

13-13-10

Tycos

TEMPERATURE INSTRUMENTS

Indicating Recording Controlling

Tycos Mercurial, Recording and Index Thermometers for all industrial and laboratory applications.

Electric Contact Thermometers. Temperature, Pressure and Time Regulators.

Mercury Column Vacuum, Pressure and U Gauges.

Tycos Base Metal, Rare Metal and Radiation Pyrometers (Indicating and Recording) Fery Radiation Pyrometers.

Hygrometers, Hydrometers.

Mineral Oil Testing Instruments.

Aneroid and Mercurial Barometers. Recording Barometers. Pocket Compasses. Surveying Compasses. Rain Gauges. Anemometers and Air Meters. Thermographs. Hand Levels. Aviation Barometers and Inclinometers.

Tycos Sphygmomanometers.

Tycos Fever Thermometers and Urinary Glassware.

Thermometers of all kinds for home and general use.

Measuring up to high standard production implies an efficient indicating, recording and controlling of temperature changes. To meet the demand of efficient management in the details of power-house and factory, you are forced to have instruments in which you can place confidence.

Tycos fills the bill *Tycos* instruments are the product of over half a century of experience. They are exact to the *nth* degree—dependable silent servants of efficiency.

Every line of service from the delicate fever thermometer for indicating temperatures of the body to the Fery Pyrometer, registering several thousand degrees, is represented in our plant. Unquestionably this wide range of experience is proof-positive of our dominance in this field. Write now for our interesting literature.

Taylor Instrument Companies

Rochester, N. Y.

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MILLING MACHINES
GEAR CUTTERS
LATHES
PLANERS
SHAPERS
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ELECTRIC MOTORS
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and GRINDERS
WELDING OUTFITS

SEEGER-WALRAVEN COMPANY

Machine Tools—Mill Supplies—Foundry Equipment

36-38 WEST ALABAMA STREET, ATLANTA, GEORGIA

IF the Starchman is NOT to blame WHY KICK WITH HIM ?

THE starch-man, nine times out of ten, suddenly becomes undeservedly "popular" when the Weaving Department reports considerable difficulty with the warp yarn on the looms.

As a matter of fact, it usually isn't the fault of the starch any more than it is of the quality of coal you burn. The trouble is invariably due to IMPROPER cooking of the "size" mixture.

INSUFFICIENT heat fails to develop the characteristics of the particular starch and convert it into a uniform paste.

EXCESSIVE heat gradually changes the starch into invert sugar, which has practically no value as a protecting or stiffening agent for the yarn.

UNIFORM heat within the kettles, therefore, is vitally important.

"TAG" SELF-OPERATING TEMPERATURE CONTROLLERS

economically solve this problem because they automatically respond to the slightest tendency toward a temperature change.

Furthermore, in order to reap the full benefit of a properly cooked "size" mixture, it is absolutely imperative to maintain a uniform temperature in the SIZE BOXES when applying the "size" mixture to the yarn.

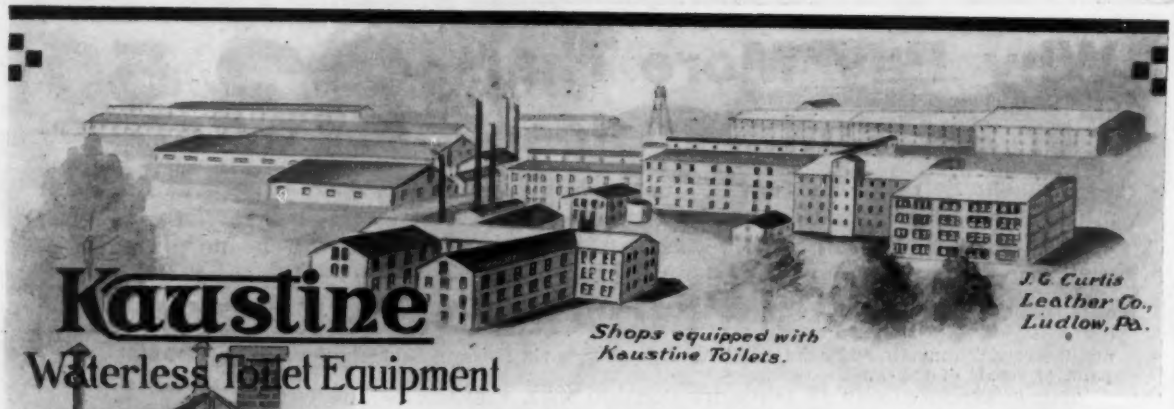
"TAG" Controllers also accomplish this uniformity automatically—thus producing perfectly sized and uniform warps.

Bulletin VC-387 will provide further details of interest. Write for a copy—TODAY.

C. J. TAGLIABUE MFG. COMPANY

18-88 Thirty-Third Street, BROOKLYN, N. Y

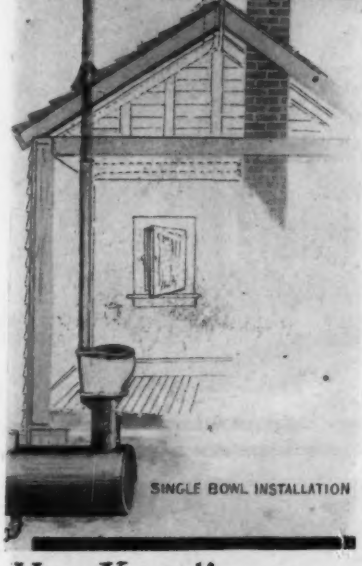
BOSTON CHICAGO PITTSBURGH SAN FRANCISCO



Kaustine
Waterless Toilet Equipment

Shops equipped with Kaustine Toilets.

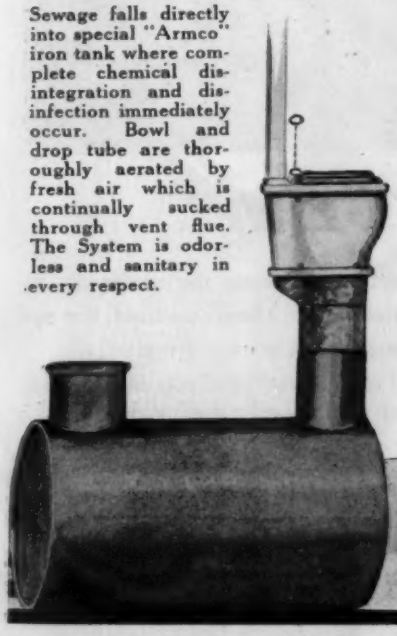
J. G. Curtis Leather Co., Ludlow, Pa.



SINGLE BOWL INSTALLATION

How Kaustine Toilets Operate

Sewage falls directly into special "Armco" iron tank where complete chemical disintegration and disinfection immediately occur. Bowl and drop tube are thoroughly aerated by fresh air which is continually sucked through vent flue. The System is odorless and sanitary in every respect.



Wil Be Installed Throughout a Large Part of the Cotton District This Year

Health and living conditions will be improved in many more of the mill towns during the coming season.

So many mill owners have installed the Kaustine System in their mills and home colonies that the demand for more installations justifies an elaboration of our plan of distribution.

And we are ready now to prove to cotton men the value of Kaustine Waterless Toilets, and to satisfy the growing demand for them.

And We Can Prove the Economy of the Kaustine System

No matter what the size of building or where located—or even if supposedly good water and sewerage connections are now available—we can show you how to secure even better sanitary conditions and to save money and time by installing a Kaustine System.

Kaustine Toilets afford every convenience of the city water closet, yet require neither water nor sewer connection. They are complete and scientific in every respect. They are adaptable to any type of building and may be had in single or multiple units.

You take no chances with a Kaustine installation. We guarantee the results and the service—and this guarantee is backed by a nation-wide organization and ample capital. There are now over 40,000 Kaustine Systems in operation and they are endorsed by health and labor authorities as efficient, sanitary sewage disposal.

Write to Our Engineers for Plans for Your Needs

We are in position to supply complete satisfactory sewage disposal systems for from one to one thousand or more homes. We invite you to consult with our engineers. They have successfully planned systems for industrial villages and manufacturing plants throughout the country. We handle the job from beginning to end and guarantee results—or will work with any contractor.

KAUSTINE CO., Inc.

A. M. Whelpley, Sales Manager, 428 Candler Bldg., Atlanta, Ga.

In Less than a Month this Village Completely Equipped with Kaustine Toilets

Why Pay More Than $3.50 For a Sanitary Closet

You can fly proof each one of your privies—prevent disease—guard against soil and water pollution, and increase the efficiency of your operatives for less than the cost of lard tub containers or boxes. You need no running water—no plumbing—no fixtures—no "expert" high priced labor to install the

STEVENS SANITARY CLOSET CAN

and it works continually and uninterruptedly from four to six years without expense for paint or repair of any kind.

THE STEVENS CAN IS AN ECONOMY IN YOUR MILL VILLAGE IF YOU WILL USE IT and IT alone—without screens, vaults, or special equipment or buildings. It is GUARANTEED FLY PROOF AND SANITARY.

Why tolerate expensive, cumbersome equipment—why worry over days and weeks of torn up, dismantled buildings—why pay more than $3.50 to make your surface closets as sanitary—as fly proof—as efficient as they can be made—by any method—or any device—under any name—at any price!

THE STEVENS CAN is quickly installed and easy of access for cleaning. It will not absorb odors—go to staves—rot—burst from freezing or clog. Rain can't spatter contents and pollute soil or water. It is the solution to your surface closet problem. Then why not buy it TODAY—or if you doubt these facts give a few of the Cans a trial till you can see how they work.

A postal will bring proofs of our statements, or a trial shipment of Stevens Cans. Write today.

THE SELIG CO., Manufacturers
ATLANTA, GA.

THE SELIG COMPANY OF TEXAS
Western Distributors
DALLAS, TEXAS

A Sanitary System of Sewerage Disposal

The day of the scavenger in industrial villages is passing. In place of former unsanitary, disease-spreading methods hundreds of villages are now equipped with the

"SANISEP SYSTEM"

This system disposes of every particle of the material; no scanvenger is required. There are no chemicals used, the soil is not polluted and no disagreeable odors are given off.

The output of your mill will soon show the effects of healthier, happier operatives. Let your first move be the installation of a "Sanisep" System.

Write for further information and prices.

Cement Products Company
Trust Building Wilmington, N. C.

The Arm of Protection

Is the one law against intrusion the thug understands and respects. Cyclone Fence makes the would-be thief or vandal "Stop" at your property line. He respects your ownership.

The "Stop Sign" to all undesirables is

Cyclone
Property Protection Fencing

Use the Cyclone Arm of Protection to guard your property. Cyclone Fencing combines the Quality, Durability and Strength necessary to make industrial property Safe. Stops leaks from theft—reduces watchmen expense—soon pays for itself.

The leaders of every industry are users of Cyclone Fencing; their unanimous endorsement is your guarantee of Superior Protection. Ask for free illustrated catalog.

Phone, Wire or Write to Main Offices, Waukegan, Ill., or Branch Offices Nearest You.

CYCLONE FENCE COMPANY

Factories: Waukegan, Ill. Cleveland, Ohio

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Chicago, Detroit, Philadelphia, New York City, Portland, Ore., Oakland, Cal., San Francisco

PAGE
WIRE-LINK FABRIC
Can Serve You In a Dozen Ways

While Page Wire-Link Fabric is best known as the ideal material for protection fencing, its value is by no means confined to this.

For interior partitions, machinery guards, tool-room enclosures, cashiers' cages, window guards, conveyor belting and many other uses, it is superior to any other material.

There are probably a dozen ways in which it can serve you about your plant, inside and outside.

Write Our Engineering Department at Adrian

We shall be glad, without obligation on your part, to make a special study of your plant and advise you where Page products will save you money or make for greater efficiency.

Any Page product can, if specified, be made from billets of Armco (American Ingot) iron, furnished for the exclusive use of our wire mills by the American Rolling Mill Company of Middletown, Ohio.

Other PAGE Quality Products

Special Analysis Wire
Armco Iron Welding Wire
Galvanized Wire
Wire Mill Products
Woven Wire Farm Fence
Wire Lawn Fence
Ornamental Iron Fence
Architectural Iron
"Copperweld"—Copper Clad Steel—Wire
ArmcoIronMagnetCoreWire
Spring Wire
Rope Wire

STEEL AND WIRE — PAGE — QUALITY PRODUCTS

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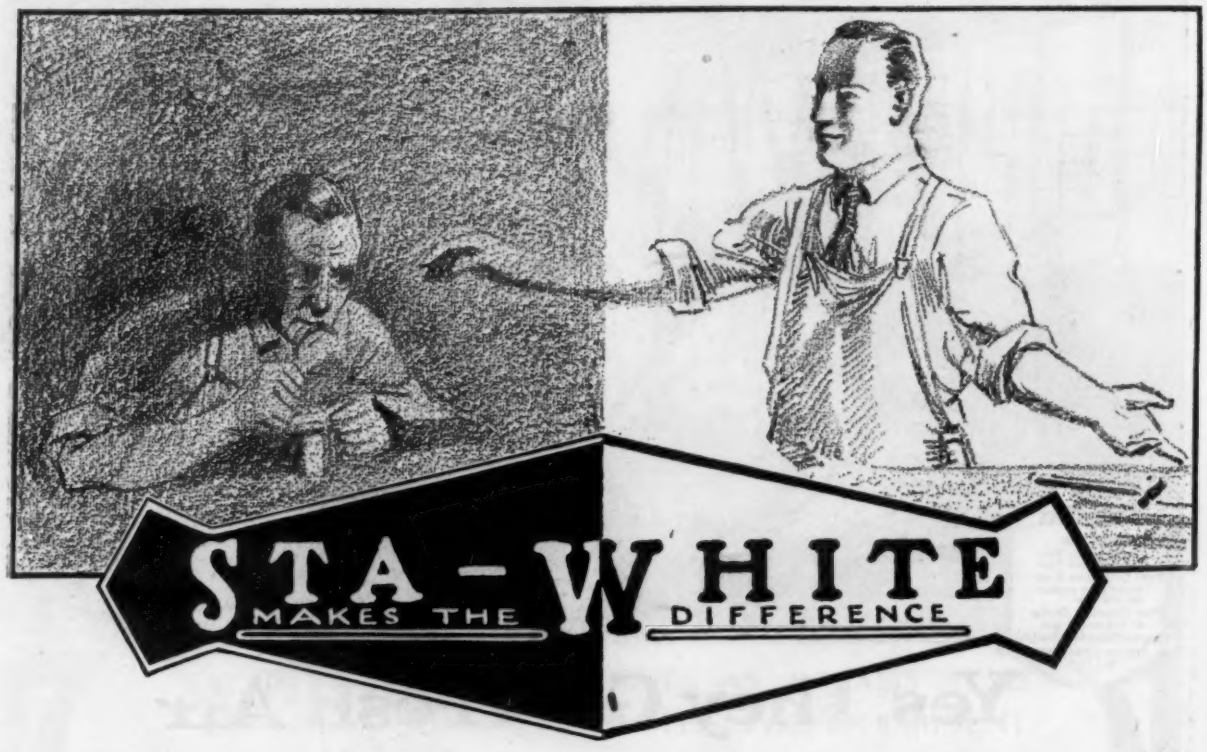
Formerly Page Woven Wire Fence Company
Established 1883
ADRIAN, MICHIGAN *Factories* MONESSEN, PENNA.
Branches: New York, 30 Church Street; Pittsburgh, 644 Union Arcade; Detroit, 660 W. Fort St.; Chicago, 175 W. Jackson Boulevard.



Come Into the Light

DEGRACO PRODUCTS

Superior Graphite Paint
A metal protective coating.
Degraco House Paint and Varnish
Sta-White
The pure white oil paint for industrial interiors.
Degraco Brick and Concrete Paints
Degraco-Tone
An interior flat wall finish.
Degraco Gas Holder Paint
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A damp-proof coating.
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Concrete floor hardener.
Degraco
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Machinery Enamels
Flat Machine Colors
Iron Filler
Wood Preservative
Pipe Joint Cement
Boiler Graphite
Lubricating Graphite

Special Paints for Special Purposes

A bright, well lighted plant interior, or dark and dingy workrooms?

Consider what it means to you—to every plant official—from a standpoint of production costs, quality and quantity of output.

The improvement will show up on your production sheets, when the poorly lighted plant is given the bright and cheerful atmosphere through the use of Sta-White.

Sta-White, the pure white oil paint for industrial interiors, will increase the light by reflection. It utilizes all the light, and eliminates the dark corners.

When you paint, you will, of course, be interested in a coating that has proven its worth in service.

That's why you should specify Sta-White. That's why this quality mill white is used by manufacturing plants, textile mills, etc., throughout the country.

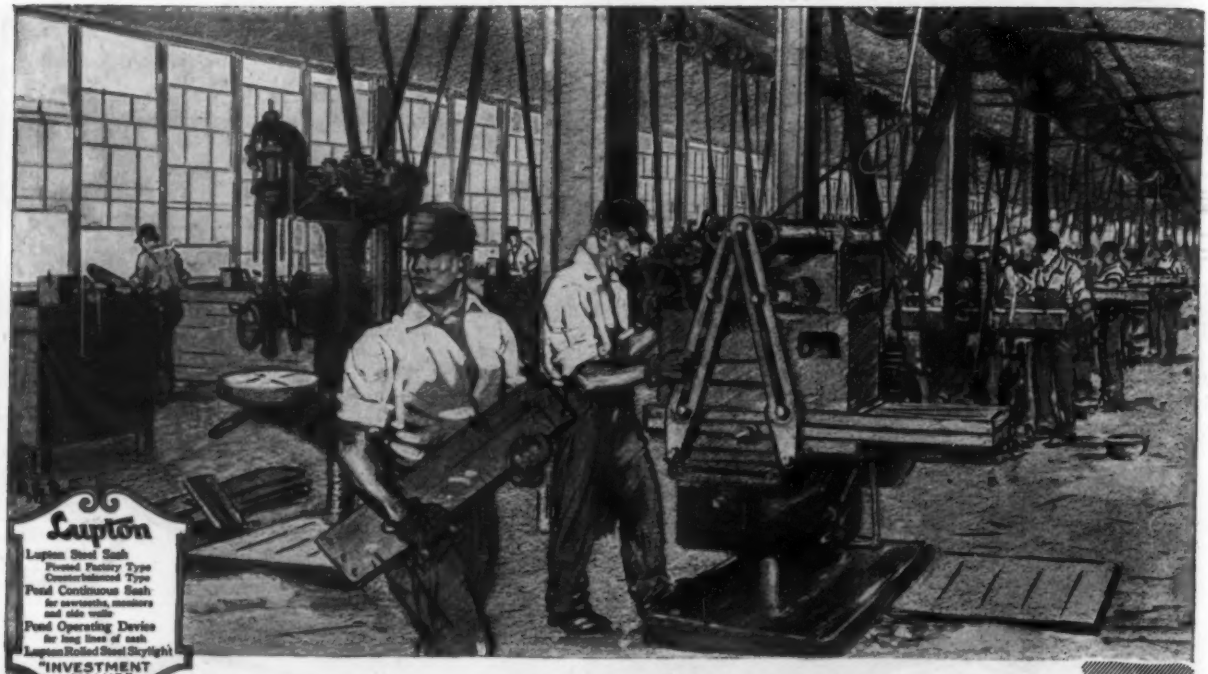
It will pay you to remember Sta-White.

DETROIT GRAPHITE COMPANY

Makers of

Paints in all Colors for all Purposes

107 Twelfth Street, Detroit, U. S. A.

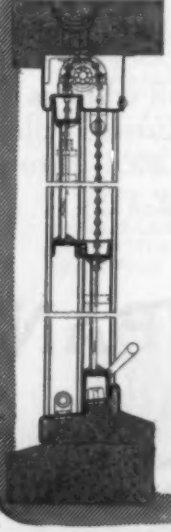


Yes, They Get Fresh Air

The windows are 40 feet away. Conventional types of sash, with badly-placed openings of limited area, would have left a belt of dead air down the center, unfitting it for active use.

But the windows are Lupton Counterbalanced. They are three sash high, with 14-foot ceilings. Hence the ventilating area is 2/3 of the glass area; the top and bottom openings are widely separated; being always equal, they insure circulatic

Lupton
STEEL SASH
COUNTERBALANCED TYPE
PATENTED



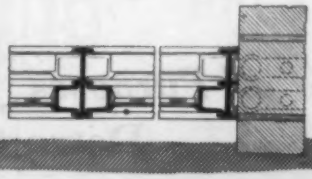
permits using a wider building, thus reducing rental charges. On the top floor, with a Pond Truss or specially arranged sawtooth roof, it enables the most exacting operations to be done under ideal conditions.

Not only does it save its cost by better layout; it earns it again by better service. It does not encroach on working space; it is easily cleaned and painted; it is genuinely weather-tight; its welded sash joints never loosen.

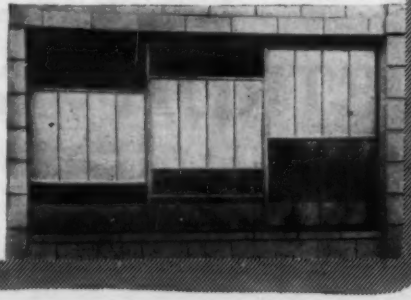
Booklet, "Air, Light and Efficiency," tells how we helped the owners of some famous factories to get maximum returns from their investment in Lupton Products. It's free to plant officials, architects and engineers.

DAVID LUPTON'S SONS COMPANY
Amber St. & Allegheny Ave., Philadelphia, Pa.

Canadian Manufacturers—THE A. B. ORMSBY CO., Ltd., Toronto



Build now, and begin earning the profits on a modern plant.



FOR SEVERAL YEARS WE HAVE BEEN MAKING EXAMINATIONS OF PLANTS TO DETERMINE NOT ONLY THEIR PHYSICAL CONDITION BUT THEIR TRUE VALUE . . . THE RESULTS OF SUCH EXAMINATIONS ARE EMBODIED IN A REPORT WHICH CONTAINS A CLASSIFIED INVENTORY SHOWING THE VALUE WHEN INSTALLED . . THE DEPRECIATED VALUE . . AND THE REPLACEMENT VALUE . . . . DETAIL SKETCHES OF THE PROPERTY ACCOMPANY THE REPORT . . . . . .

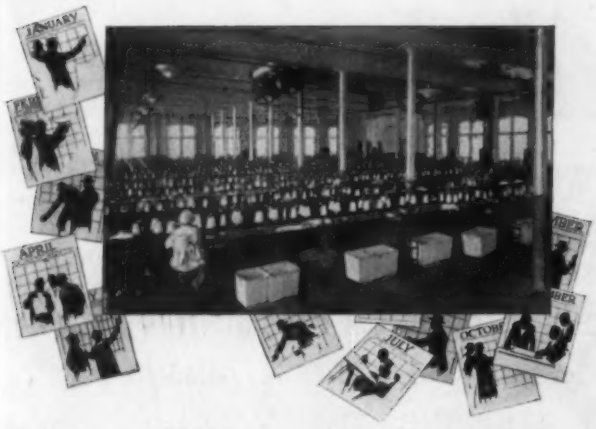
WITH THESE INVENTORIES AS A BASIS IT IS EASY TO ASCERTAIN THE PROPER AMOUNT AT WHICH THE PLANT SHOULD BE CARRIED ON THE BOOKS . . TO CORRECTLY SET UP THE ALLOWANCE FOR ANNUAL DEPRECIATION AND TO DETERMINE THE INSURABLE VALUE . . . . . .

WE WILL BE GLAD TO EXPLAIN THIS SERVICE ON REQUEST . . . . . .

J. E. SIRRINE

ENGINEER

GREENVILLE SOUTH CAROLINA



Serving The Ipswich Mills

The Ipswich Mills retain Lockwood, Greene & Co., Engineers, to render them a constant engineering service.

Whether for new construction at one of their five large knit goods plants, or for rearrangement of power, processes or lighting, or for the setting of valuations, or for any other matters in which engineering plays a part, the Ipswich Mills call upon us for advice or supervision of the work. Thus they avoid the expense of maintaining a costly engineering department, and gain the abilities of a large engineering organization.

This is but a glimpse of the service which we are fitted to render—fitted by many years of experience in planning and supervising the construction of textile plants. We have gained a broad knowledge, not only of technical, but also commercial, financial and business conditions and how to meet them.

"The Successful Knit Goods Plant," is a new book describing a number of plants we have engineered. It will be sent you at your request.

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LOCKWOOD, GREENE & CO.
ENGINEERS

BOSTON, 60 FEDERAL ST. - - CHICAGO, 38 S. DEARBORN ST.
ATLANTA, HEALEY BUILDING - - NEW YORK, 101 PARK AVE.
LOCKWOOD, GREENE & CO. OF CANADA, LTD., MONTREAL, P. Q.

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ECONOMY
renewable
FUSES

ECONOMY FUSES are accurately rated. That means safety. They can be used over and over. That means economy. It takes but a moment to replace the link and renew the fuse. That means convenience.

An inexpensive "Drop Out" Renewal Link restores a blown Economy Fuse to its original efficiency.

The ECONOMY is a *pioneer* renewable fuse—the first to be proved practical. It is widely imitated but not duplicated.

Order by brand, from your electrical jobber and dealer.

Write for Catalog 12.

Economy Fuse & Mfg. Co.
Kinzie and Orleans Sts., CHICAGO, U. S. A.
Sole Manufacturers of "ARKLESS—the Non-Renewable Fuse with the 100% Guaranteed Indicator.

Economy Fuses are also made in Canada and Montreal.

Easiest To Install

Standard Single Conduit Connection
Line Wires and Motor Wires both from above.
Standard Single Conduit Connection
Line Wires from above, Motor Wires from below or vise versa.
Standard Double Conduit Connection
Line Wires and Motor Wires from above.
Standard Single Conduit Side Connection
Line Wires and Motor Wires from above.
Standard Single Conduit Connection for Open Wiring
3-Wire
3-Phase

Type A Auto-Starters

Are Easily and Cheaply Installed—

—Standard conduit and conduit fittings are used throughout, and on all sizes.

—Close nipple and lock nut make tight connections to starter.

—Conduit, with all wires drawn in, may be completely installed before switch is mounted.

—With all starters, connections may be made at the back or the side.

—Dust-proof connections to starter for open wiring, may be made with standard conduit with porcelain cover and conduit fittings.

Westinghouse Electric & Manufacturing Company,
East Pittsburgh, Pa.

W WESTINGHOUSE ELECTRIC

Westinghouse

The Proper Lighting For

TEXTILE MILLS

Our service department will be glad to confer with you as to the best means and most modern systems of lighting mill or factory.

The facilities we have and the large stock carried in our warerooms at all times enables us to supply on short notice almost anything desired in illuminating units and accessories.

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Wireless Pipe Locator and Finder

TYPE G

$65.00 NET

☞ In English Money £13:10:10:

Will show exactly, so you can trace it to an inch, any main or service, under any kind of pavement. Makes no difference how deep the pipe.

Works just as well through snow or water or ice, winter and summer.

Will show exactly the location of any service from the main to the house or meter.

Will show exactly where intersections are, such as tees and cross connections in streets or tees in services.

Also yard connections around the plant—runs of oil, steam, air or gas lines as well as water pipes—but not both at the same time, but just the one wanted.

Makes no difference if the pipe is full of water or gas or is empty, or how many other pipes or conduits there may be in the street.

Shows piping in walls of houses and buildings and piping under floors, or between floors, or between houses, where two or more houses are on the same service.

Shows up a by-pass if such exists. Wireless has found by-pass connections from fire hydrants, from mains, in back yards and under lawns, in closets, some cemented in and some even run in chimneys. If a shut-off valve is concealed on the by-pass, that gives no protection against detection with this device.

Of great help in finding curb and main boxes that have been covered and are not in sight. Does not point out the box but gives the line so that finding the box is easy.

Works in any kind of weather—day or night. Often curb lines or property lines are changed or covered or not plain to see without looking up records and often the records are not correct, but that makes no difference to the man with the Wireless.

Especially valuable on old services, some of those old, long, crooked ones, the work of years ago. Men who laid them are dead, gone, or have forgotten the locations, but Wireless can trace them out as plainly as if laid on top of the ground and not below.

Easy to learn and practical, or more than TWO THOUSAND water and gas managers would not have bought it.

Full instructions sent with the apparatus and prompt shipment assured.

☞We will welcome the privilege of sending Wireless on strictly 30 days' approval and free trial at our own expense, charges prepaid. Make all the use you wish of it during the 30 days in your possession and should you decide not to keep it, return at our expense; no charge will be made for any use you may have had from it.

NOTE—Four ordinary dry cells and some wire are necessary to operate the instrument. These we do not furnish, as the forwarding charges usually cost more than they are worth. For a very small sum these can be bought locally anywhere in the world.

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We will ship this instrument to any overseas country by parcel post, with all forwarding charges prepaid by us. If any package forwarded by us is lost, or destroyed by U submarines, we will cheerfully bear the loss and send another.

It is your privilege, regardless of how distant you may be, to have Wireless sent you on strictly 30 days' free trial and approval, by that we mean that you can have the instrument in your possession for 30 days and you may use it and test it, and if not satisfied, return to us and all charges will be cancelled.

Please note that where any country requires an entry duty to be paid, or makes a Customs charge on imports, the purchaser must clear through the Customs and pay the charges or duty asked.

W. S. DARLEY & CO.

INSTRUMENT MAKERS

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The 100% Signal

Louder and More Distinctive—
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More Economical to Maintain

When lives and property depend upon quick response how can you afford to use any other signaling device than

The Federal Electric Siren

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Send coupon today for full particulars

Federal Sign System (Electric)
SIREN DEPARTMENT
Lake and Desplaines Streets, Chicago, Illinois
Branches in all Large Cities

CUT ALONG THIS LINE

Please send me list of towns using Federal Sirens and all information. Our city has ____ population.

Name _____

Address _____

"O"

Motors for Industrial Equipment

War has demonstrated anew the economic value of electricity. In this reconstruction period, is the time to profit by the lessons of the war.

The inevitable pause before the industries of peace can reach their full swing, gives the opportunity for re-adjustment, or replacement, for introducing new methods or modern equipment.

Allis-Chalmers motors are known in practically every industry and used with almost every type of machine.

Our experience in motor design and application covers more than a quarter of a century.

Our stock of standard motors was never in better shape for prompt shipment.

Let us know your motor problems. Allis-Chalmers experience is at your service for solving them.

ALLIS-CHALMERS

Milwaukee. Wis. U.S.A.

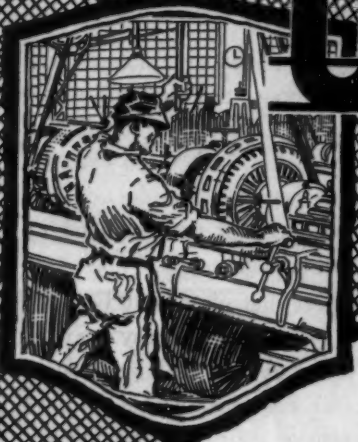
Renewed Tungsten Lamps

Ten to Forty Watt
20c Each

Send for Particulars

BOSTON ECONOMY LAMP DIVISION
NATIONAL LAMP WORKS OF GENERAL ELECTRIC CO.
43 Hospital Street, Providence, R. I.

UNION
RENEWABLE FUSES



We Have Devoted Thirty Years of Thought and Labor to the Manufacture of Fuses

The "UNION" Renewable Fuse and the "UNION" Renewal Link are the results of this extended effort.

It will take us less than thirty minutes to demonstrate their absolute superiority and show how to reduce your present fuse maintenance costs.

Attention to detail is a big thing in the superiority of "UNION" Renewable Fuses. That little bend in the ferrule type element, for instance, is a small thing but it insures the proper centering of the figures under the window in the cap.

That's what the window is for, but it used to require considerable time and skill to get the old style straight element bent at just the right point. Try it and see. In "UNION" elements one end is bent *right*—the other can't go wrong.

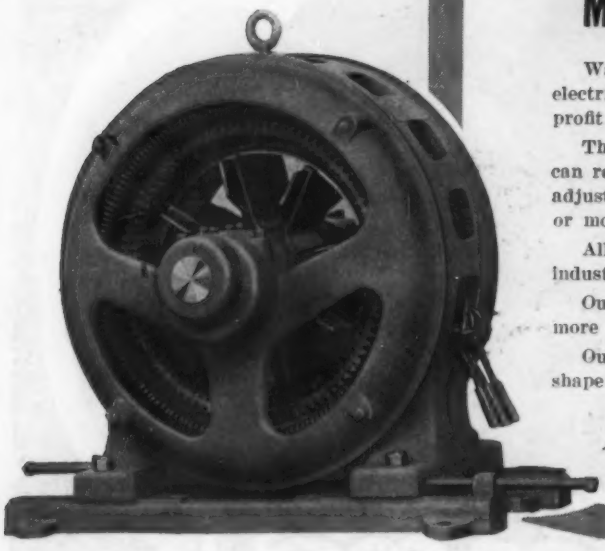
This is just one of the details worked out by the makers of "UNION" Renewable Fuses to simplify their use. That's why they are fool-proof—why they outlive all other fuses. That's why we say, **regardless of what other renewable fuse you are now using, "UNION" Renewable Fuses and "UNION" Links will reduce your present fuse maintenance costs.**

Electrical dealers everywhere sell "UNION" Renewable Fuses and "UNION" Renewal Links. Order a trial installation today.

Chicago Fuse Mfg Co.

Renewable and Non-Renewable Fuses

Chicago **New York**



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Allis-Chalmers motors are known in practically every industry and used with almost every type of machine.

Our experience in motor design and application covers more than a quarter of a century.

Our stock of standard motors was never in better shape for prompt shipment.

Let us know your motor problems. Allis-Chalmers experience is at your service for solving them.

ALLIS-CHALMERS

Milwaukee. Wis. U.S.A.

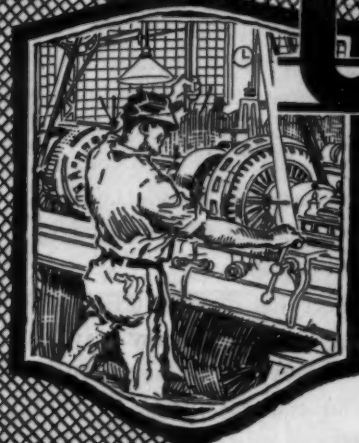
Renewed Tungsten Lamps

Ten to Forty Watt
20c Each

Send for Particulars

BOSTON ECONOMY LAMP DIVISION
NATIONAL LAMP WORKS OF GENERAL ELECTRIC CO.
43 Hospital Street, Providence, R. I.

UNION
RENEWABLE FUSES



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Electrical dealers everywhere sell "UNION" Renewable Fuses and "UNION" Renewal Links. Order a trial installation today.

Chicago Fuse Mfg Co.

Renewable and Non-Renewable Fuses

Chicago New York

How "GLARE" Runs Up Your Labor Cost

Are you a desk worker? If so, you know how glaring light will often tire you. The glare may come from an unshaded light or a violent reflection from some nearby shiny object. Many a time it has bothered your eyes, slowed down your work, and occasionally driven you out in the middle of the day to "take something" for that puzzling headache.

Glare! Out in the mill, like enough, there are girls and men who are *never free* from glaring light. *You* pay for their headaches, their layoffs, their wasted time and their damaged eyesight.

Suppose you never *have* heard any "complaints" about the lighting—you can't expect the operatives to diagnose the cause of their trouble. It's up to you, the executive in charge of production, to know just how much of your high labor-cost is due to bad lighting.

If you suspect that glare *may* be costing you money, there's an easy way to find out. Write us and we'll put you in touch with an engineer, whose findings will either relieve your mind completely or point the way to a small investment that brings large returns.

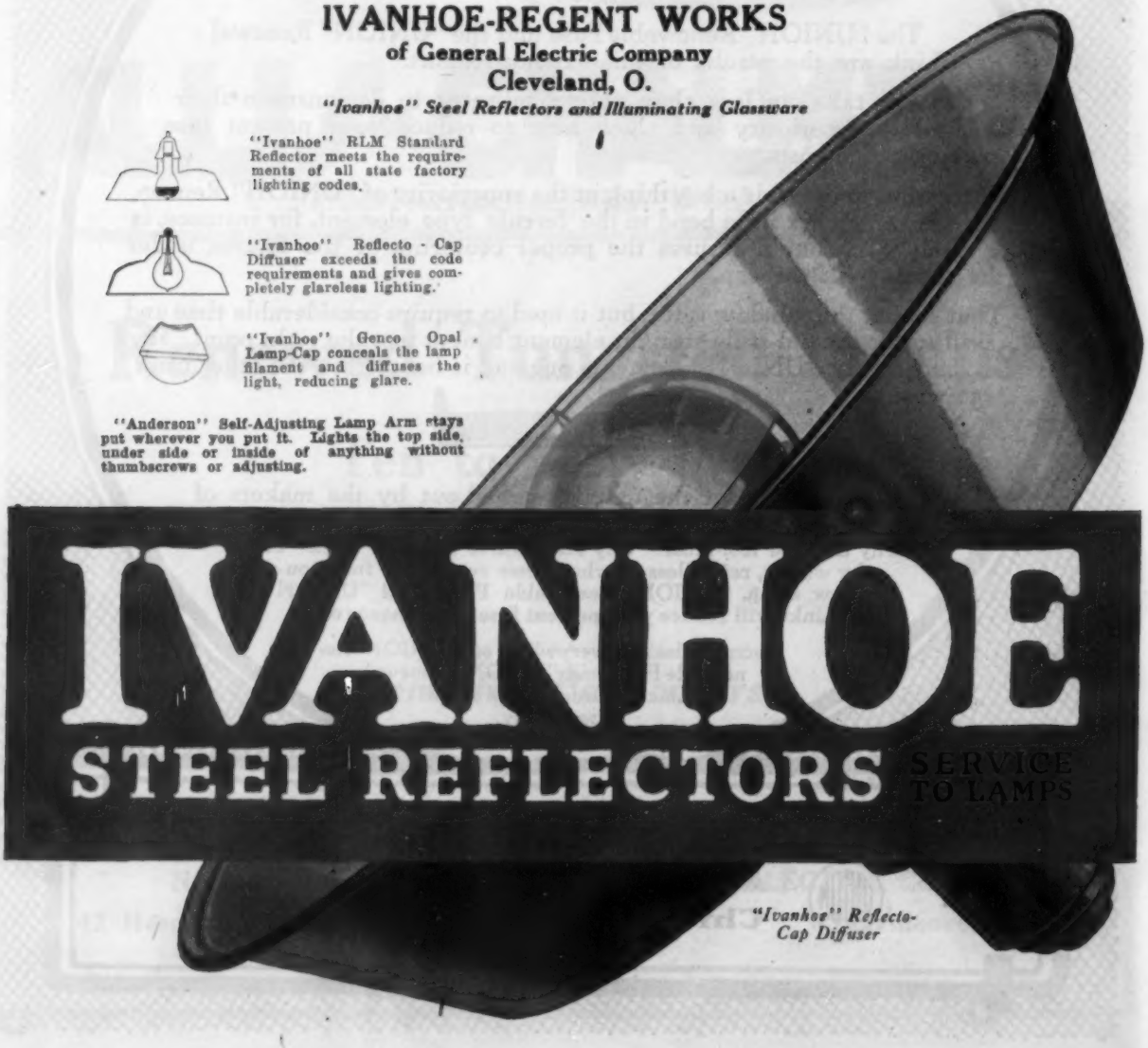
IVANHOE-REGENT WORKS
of General Electric Company
Cleveland, O.
"Ivanhoe" Steel Reflectors and Illuminating Glassware

"Ivanhoe" RLM Standard Reflector meets the requirements of all state factory lighting codes.

"Ivanhoe" Reflecto - Cap Diffuser exceeds the code requirements and gives completely glareless lighting.

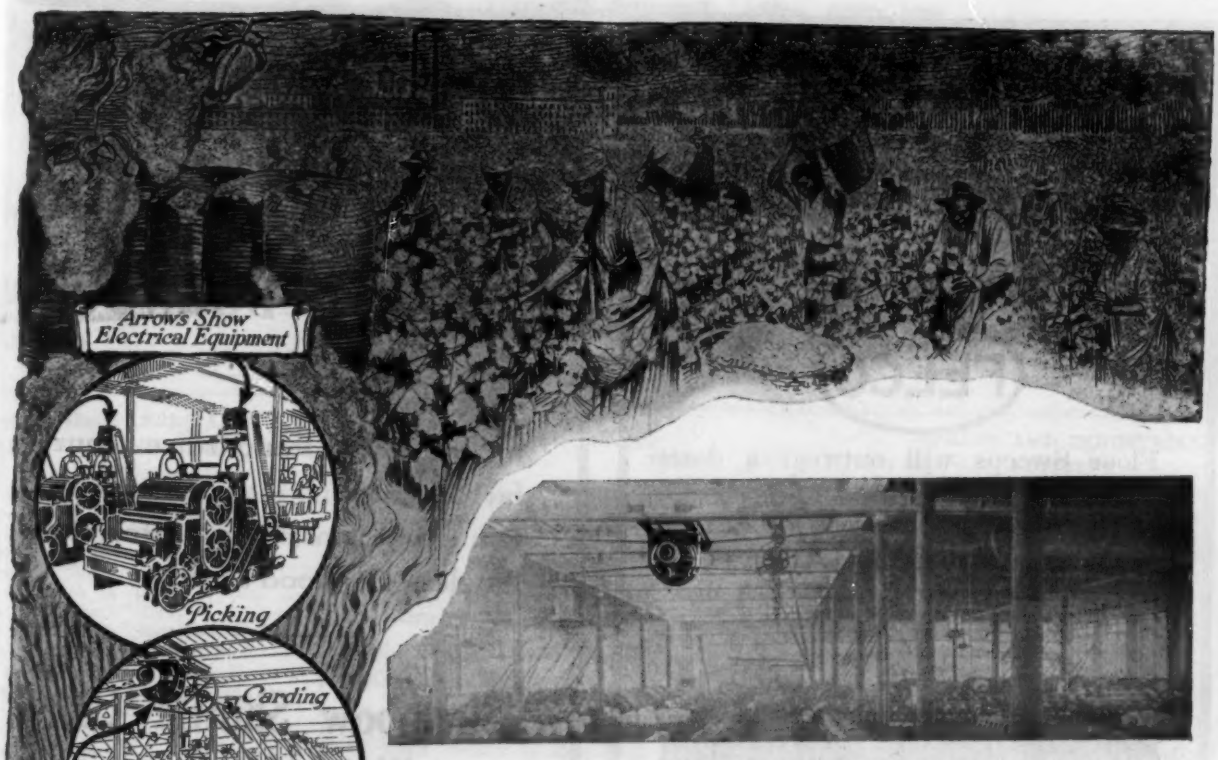
"Ivanhoe" Genco Opal Lamp-Cap conceals the lamp filament and diffuses the light, reducing glare.

"Anderson" Self-Adjusting Lamp Arm stays put wherever you put it. Lights the top side, under side or inside of anything without thumbscrews or adjusting.



IVANHOE
STEEL REFLECTORS SERVICE TO LAMPS

"Ivanhoe" Reflecto-Cap Diffuser



Card Room Erlanger Cotton Mills, Lexington, N. C.

Electric Power Records Facilitate Efficient Carding

Not only does G-E Motor Drive provide ideal power conditions for obtaining most and best product at least power cost throughout a mill, but it gives the constant speed and great reliability demanded in the card room. Other valuable features of this drive help efficient mill management.

At the Erlanger Cotton Mills, Lexington, N. C., which are driven throughout by G-E Motor Drive, the power meters in the card room are of great assistance in checking the operation of the cards.

Any increase in friction or unnecessary delay in grinding rolls can be immediately discovered, corrected, and power consumption, as well as production, kept where it should be.

The results obtained from motor drive in this mill have been more than satisfactory and the upkeep has been slight.

Our engineer specialists will be pleased to co-operate in solving power problems.

Principal Office: N.Y
Mill Power Dept. Boston, Mass.

44-4

GENERAL ELECTRIC COMPANY

Floor Sweep

Save Your Broom Expense

FELCO

Floor Sweeps will outwear a dozen brooms. Made in any width desired.

Send us a trial order or write for prices

D. D. Felton Brush Co., Atlanta, Ga.

S. A. Felton & Sons Co., Manchester, N. H.

Manufacturers and Repairers of all Kinds of Brushes.

Felton Curved Floor Sweep for Spinning Room Alleys.

The Standard Shuttle

IS ONE MADE OF

CLEAREST DOGWOOD

In order to standardize your factors entering into production, you should insist on uniformly flawless dogwood shuttles.

Shambow Shuttle Co.

Woonsocket, R. I.

P. B. McMANUS,
President and Treasurer.

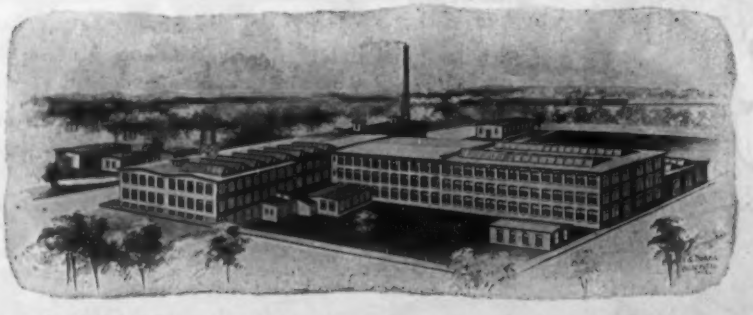
E. J. McGAUGHEY,
Vice President and Manager.

Home Bleach & Dye Works

INCORPORATED
ESTABLISHED 1881.

Dyers, Bleachers and Mercerizers of Cotton Yarns—in Skein and Warp

Daily Capacity 50,000 Lbs.



Facilities for Winding Cotton Yarns on Paper Cop Tubes for the Shuttle, also on Beams, Cones, Parallel Tubes and Jack Spools.

Office and Works at Pawtucket, R. I.

COTTON

Published Monthly by

W. R. C. Smith Publishing Co., Dalton and Atlanta, Ga.

L. L. ARNOLD, Editor.

Editorial and Advertising Departments, Grant Building, Atlanta, Ga. Subscription price, $1.00 per year; Canada, $1.50 a year; Foreign, $2.00 a year. Entered at the Dalton, Ga., postoffice as second-class matter.

Contributions to the columns of Cotton are solicited and paid for after publication. The names of contributors need not necessarily be used, but must accompany all manuscripts.

Orders for any change in advertising must reach Atlanta previous to the tenth of the month preceding month of issue, otherwise publishers cannot be responsible for changes.

When changing address, notify us, not the postmaster. Always give the old address as well as the new one.

Member Associated Business Papers, Inc.

Member Audit Bureau of Circulation.

Volume 83. Number 5

This Issue 4600 Copies.

BUSINESS PAPERS AND NATIONAL MEDIUMS.

Suppose you had high grade shoes to sell. Suppose you had been selling some of these shoes to officers in India. Suppose you wanted to sell these shoes to more of the officers there.

As you well know the native of India goes bare foot. He has never worn shoes. He does not want shoes. He can not afford to buy shoes, especially of the quality you have for sale.

Suppose there were several magazines or newspapers published in India. Some of these publicity mediums being of a general nature and having a large circulation among the natives. Suppose there was another paper with a much smaller circulation, but going to the officers in India exclusively.

Which is the advertising medium best suited to you with your high grade shoes to sell?

The nub of all this is:—When you have something to sell go to the people who want to buy it or at least to those who can use what you want to sell. Your commonsense tells you this.

Not to mention any names there are manufacturers of specialized technical goods which can be used only under certain specified conditions who are using publicity mediums of a general nature. They ought to be using the business papers specializing in the fields where their goods are used.

Just as you, in selling your high grade shoes for officers in India would use the papers going to the officers and not the general mediums going to the poor bare footed Indians who do not know what shoes are for and can not buy them.

May COTTON will be the Pre-Exposition number and will tell the readers what may be found at the Exposition at Greenville, S. C., May fifth to tenth inclusive.

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SPRING AND INDUSTRIAL ACTIVITY

Spring in the South is a month or six weeks ahead of Spring in the northern part of the United States. This means that certain activities such as painting up, outside building operations, improvement of grounds, preparations of gardens and the reopening of outdoor life begins sooner than in the north.

Therefore manufacturers with seasonable things to sell, paints, playground equipment, cement for walks and platforms, building material, etc., should plan to begin their sales campaign considerably sooner in the South than in other sections of the country.

Let COTTON tell you about it. COTTON lives in the South and knows.

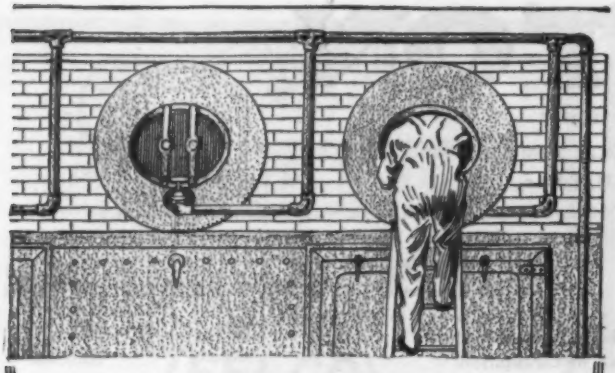
FUEL SHORTAGE AND SALES OPPORTUNITIES.

The South is blessed with many water properties. The electric current from these hydroelectric plants flows through wires to many cotton mills.

Other sections of the United States depend largely on power derived from coal brought to their power plants over the railways of the country. The railroads are affected by the climatic conditions. Transportation does not flow as freely during the storms of winter as during the other seasons. Electricity flows through a wire at zero temperature as well as at any other. While the coal consuming plants will be shut down this winter, plants in the South will be running full time.

Push your sales in the cotton growing states. A good way to help your salesmen is by publicity in COTTON, the dominating textile magazine of the section.

June COTTON will contain among other things the story of the Annual Convention of the Southern Textile Association and what happened at the Greenville Show.



Scale

will form in boilers in spite of you or your compounds. And you spend too many days each year trying to hammer it out.

Is it not more sensible to impregnate the scale with tiny flakes of graphite, so as to make the scale brittle and easy to remove with cleaning tools? A great many engineers are saving from 50% to 75% of the former cost of boiler cleaning by using

DIXON'S PIONEER
BOILER GRAPHITE

Safe, reliable, sensible. Write for booklet No. 34-T.
Made in JERSEY CITY, N. J., by the
JOSEPH DIXON CRUCIBLE CO.
Established 1827.

SETTEES
AND SWINGS FOR
PLAYGROUNDS and PARKS

LOW PRICES QUICK SHIPMENTS

We also manufacture Wire and Iron Window Guards, Stall Guards, Hay Racks, Oat Mangers, Etc.

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INCORPORATED
LOUISVILLE, KY.

GARLAND

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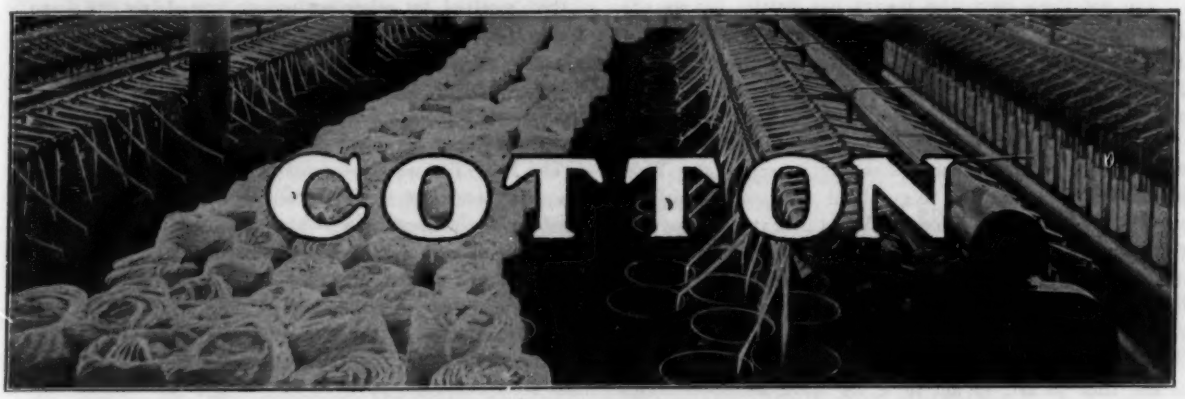


March, Nineteen-Nineteen

Your Servants in Washington

The National Industrial Conference Board, with headquarters at fifteen Beacon street, Boston, Mass., have recently issued to its membership a booklet entitled " A Case of Federal Propaganda in our Public Schools." This booklet contains thirteen pages of criticisms of and quotations from "Lessons in Community and National Life," three pamphlets issued by the United States Bureau of Education at the request of President Wilson for high school use.

If you have not already given careful thought and attention to the criticisms outlined, you should do so at once. It casts an interesting sidelight on the methods adopted by some of your servants in Washington. If your copy failed to arrive, write the National Industrial Conference Board at the address given and ask for one. It vitally concerns the future of your business.

A Soldier's Suggestion.

In a letter just received from a soldier in France, who was a cotton mill man before he went into the army, appears the following suggestion:

"I tried to write an article, for you to consider, on what the cotton mill business could offer the young man who had formerly held nothing more than a clerk's job in some bank. Had the ability and education but got into a rut and the war has shaken him out of it. We can use a lot of these chaps and benefit by it. However, many of them, like myself, are planning to try double harness as soon as they get back. Because of this they cannot afford to spend two or three years in a textile school, or start in at the pay usually given beginners. It seems to me there is some way in which these fine chaps can be used to the mutual advantage of themselves and the business. Think it over.

"It is a mighty important subject with some of the boys and they are giving the matter quite some thought. They know some nice little girl has their former job—along with her powder-puff and chewing-gum. They also know she is doing the work as well as they ever did it. This war has shown a lot of chaps that they are he-men and capable of doing bigger things than before accomplished. They have a broader outlook on life.

"It seems to me that it is up to the powers that be' in the cotton mill business to get busy and do something. Make it worth while for a man who wants to be something more than a clerk to begin. All they want is a chance to begin. After they once got started, if they are any good, they will carry themselves."

We take pleasure in passing this suggestion along to the "powers that be" for any action they may wish to take. We can only add that if the "chaps" mentioned can work as well as they have fought, the reputation of the division will not be injured when its individual members get back into civil life.

Now is the Time for Constructive Work.

Five million to six million workers will seek employment this year of 1919. This total will be made up of at least 3,000,000 of the 4,000,000 returned soldiers and sailors and they must have employment.

H. H. Merrick says, "You can't let the soldiers sell shoe laces, beg on the streets or stay in the camps for lack of a job."

Prof. Moulton, of Chicago University, says, "Let us not kid ourselves. We must provide public works or public charity." "There's nothing doing on giving the boys a doughnut, a cup of coffee and a slap on the back. They merit something more substantial. *They have to have work.*"

The Government recognizes its responsibility to take care of this situation, but who is the Government. Isn't it the municipal, county and state governments—in other words isn't it you and you and you?

Public improvements should be the balance wheel of national conditions. Towns, cities, counties, states and the Federal Government should and must bridge over industrial conditions of depression or a surplus of labor, for labor must and will have the necessities of life if not some of the luxuries.

Public improvements are far behind normal. State highways are needed. Towns and cities need water works, sewers, electric lights, paving and other improvements.

The normal yearly public improvements of this country amount to some $600,000,000. During last year this amounted to less than $300,000,000. If during 1919 the normal amount of public work should be done, plus the shortage of last year and supplemented by an additional 300,000,000, as emergency improvements, making a total of $1,200,000,000, it is estimated that 400,000 men would be afforded direct employment.

Are not these men who fought our battles for us entitled to good pay? Can any self respecting community hold off its work in an effort to force these men to take greatly reduced wages from what men received while these men were risking their lives?

What is the immediate duty of public officials in the towns, cities, counties and states of the country? Your government is asking you to go ahead with your municipal, county and state work *at once*. You think you are serving your people by holding off for lower prices, but are you doing so? Do your people want what you are trying to bring about—low prices for what they sell as well as what they buy?

How many officials are broad enough to see that now is the time to act, to act in a big way; an opportunity to head off any possibility of a crisis by giving to the people who elected them the improvements they are entitled to have?

Nor is this all. While there is always a hesitancy, particularly in competitive business, to buy materials and supplies on a falling market, there is no time so well suited for the doing of repairs and replacements in a cotton mill, as when orders are slack and the manufactured product is piling up in the warehouse.

Cotton manufacturers can understand this latter phase of the situation perfectly. As the "power behind the throne" in many municipalities, they should study the situation outlined in the earlier paragraphs, and urge the proper officials to prompt or early action.

This is not to be understood as a plea for wasteful spending, but an urge to adopt a possible course of helpful procedure by doing any necessary constructive work and doing it at once. The present situation lends itself to the evil propaganda of the enemies of society. An empty stomach and an empty purse creates the opportunity for the Bolshevist. We have only to look abroad to see how disaster has come by hunger.

An Opportunity for Suggestions.

A call is being sent out by the Federal Board for Vocational Education at Washington, to patriotic individuals all over the country asking assistance in getting the Board in touch with returned soldiers who have been disabled, but who are making an attempt to work at some occupation, and are not succeeding well.

The Federal Board offers to these men the choice of over 400 trades, occupations and callings from which to select one, and in which the Board will make the student proficient. He will be allowed $65 a month support while in training. If he is married and has children, there will be allowed $30 a month for his wife and $10 a month for each child up to three. All expenses incident to the course of training are paid by the Federal Board. When he has finished and is pronounced competent, there will have been found for him a position in that line for which he has been re-educated, and preferably in or near his former home. This placement, wherever possible, is made so as not to interfere with ties, associations and interests which the man may have. When he qualifies after a trial, and is pronounced competent, his pay begins, which is the same as that received by other competent men doing the same work. His support allowance ceases when he goes on the pay roll, but at the same time his compensation from the War Risk Insurance Bureau begins and supplements his income. This compensation is absolutely unaffected by whatever he may be able to earn.

The Federal Board welcomes correspondence from those men who have tried to "carry on" and find they are hampered by their disabilities. The interest of citizens who may know of such cases is always welcomed and those who send into the Board at Washington addressess of men who are making a brave but unavailing struggle, are conferring a favor upon those men because they are opening the door of opportunity to all such.

Why Not Stabilize Cotton Goods Prices?

The general manager of a well known cotton mill has written to COTTON urging us to start a movement in the industry that will tend to make the prices for similar cotton products uniform. He has in mind the unwarranted reduction in prices recently made by mills in an effort to secure business. That such attempts not only failed to stimulate buying, but actually frightened away prospective customers is proven by the evidence presented by staff correspondents in the monthly letters printed in this issue.

The piece goods situation presented by our correspondent from the New England section emphasizes the failure to speed up buyers by this method, it finally becoming apparent that the lower the price went the fewer the orders received.

Likewise, the staff man on knit goods found a similar condition in that branch of the industry and comments upon it at some length in his letter upon "The Knit Goods Market."

This question was also discussed at the sectional meeting of the National Association of Hosiery and Underwear Manufacturers held in Reading, Pa., in February, although no definite action was taken.

With these facts facing the individual mills in their daily business dealings, it seems strange that some understanding cannot be arrived at which will produce a uniformity of prices without reaching the stage where federal prosecution under the anti-trust laws might be feared. It is at least worth while to give the matter careful thought and consideration.

A Prospective Linen Industry.

We are still "from Missouri" when it comes to a great linen industry in the United States. It is at least interesting to record, however, that William J. Robinson, chairman of the Division of Flax, Fibre and Linen Manufacture, U. S. War Industries Board, intimates that we are "to be shown." The fact that the upset to the linen industry of the world due to the war, impelled the government to make further investigation of the possibilities, after it had long accepted the proposition as more or less hopeless, previously has been revealed in Commerce Reports, but the report of Mr. Robinson is perhaps more enlightening.

Whether the stimulus afforded by the necessity of the war will prove of lasting benefit is still to be demonstrated, but the report from Mr. Robinson gives hope of this result. If it comes true the United States will in one more direction be free from that dependence upon foreign nations which was such a handicap in 1915 and 1916, though happily it has turned out to be a blessing, in stirring American initiative. Incidentally, a recent report shows that the government of Canada also is taking a practical interest in developing a linen industry.

According to Mr. Robinson, the cotton belt will have to look to its laurels. At any rate, he says that "recent discoveries in the treatment of flax make it possible for America not only to grow flax successfully and profitably in every state in the union, but to produce flax fibre with an average yield of two-thirds of a bale to the acre more cheaply than cotton can be produced and with more profit to the farmer. Synthetically prepared American flax has been converted into linen commercially for the first time in America "in a mill in Wisconsin."

Before proceeding to the report of Mr. Robinson on what has been accomplished, it is of interest, as illustrating the great interest in linen production, to mention a new manufacturing project in Ontario, Canada. A report says that an enterprise, capitalized at $2,000,000, is to be established, "somewhere in western Ontario" to take care of the present flax acreage in this end of the province. S. F. Glass, M. P., has had a prominent part in fostering flax growing there and has obtained government encouragement. He says that the establishment of the big enterprise will be the immediate result of the government's policy in giving a bounty for the spinning of textiles from flax grown in Canada.

Following are some parts of the report made by Mr. Robinson:

"After long and painstaking research a new synthetic process has been discovered, which is one of the most important discoveries to the entire field of commercial industry. The process dissolves the gum from the flax straw in less than one hour, without any injury to the fibre, and produces a strong, clean, beautiful fibre, ready for the spinner when dried and prepared. The process can be operated in either summer or winter, has no disagreeable features, costs 70 per cent less in labor, time and expense than either of the other processes, and makes bleaching, except to secure extremely white linen, absolutely unnecessary. In a test of the comparative strength of water retted fibre and the retted fibre by the United States Bureau of Standards, Oct. 15, 1918, water retted flax broke at a tensile strain of 115, while retted fibre stood a strain of 183. Flax by this new method can be produced more cheaply than cotton.

"Yarns and cloth from American fibre have been made, which, under tests by the United States Bureau of Standards, have been announced equal to similar yarns and cloth made from Irish, Belgian and Russian flax, and in some cases superior to those. This new process assures America a linen industry which it has been so long denied, besides giving to the American farmer the opportunity of taking his place with European flax growers in supplying flax fibre to spinners. But instead of the farmer producing the flax fibre, as in Europe, he simply grows the flax, delivers it unthreshed to a neighborhood factory, at a certain price per ton, as he would any other farm product.

"I have made a careful study of climatic conditions in various parts of America in relation to linen manufacture, and I find that the conditions are absolutely ideal. There is the proper amount of humidity; there is splendid bleaching water, and I do not know one untoward condition which would hinder the carrying out of every suggestion that I have made, either for the growing of flax and bringing it to a high state of profitable cultivation, or for the manufacture of linen of all grades out of American flax.

"Just as soon as we demonstrate that our farmers will grow flax in sufficient quantity, and that raw material can be had in America, there will be a decided movement for the location of several foreign linen factories in this country, and this will be more especially true if the United States government will guarantee tariff protection to this young and important industry.

"The demand for linen has been, and always will be, very great, and if linen can be brought within the reach of the masses in this country, in point of price, it will win even greater popularity.

"Not only are the Irish, Scotch and French linen manufacturers looking to America for their flax fibre, but a number of them, tired of the great strain of war, are looking toward America as a location for their linen manufactories. This is especially true of the Irish linen manufacturer, who is very apprehensive as to the imminent solution of the Home Rule agitation.

"Flax has been grown with varying success in almost every country on the globe. It has been grown successfully in all of the New England and the Middle Western States. Flax is now being grown in Oregon, Montana, Michigan and Minnesota in tracts as large as 100 acres. Samples have been shipped to Ireland and Belgium and pronounced as of high a grade as that known in Europe.

"Flax grown in Michigan and Canada has for years been sold to the Linen Thread Company and other spinners of flax threads in this country. Some of the flax has been shipped to Ireland and Scotland, where it has commanded as high a price as the best Russian grades. A test crop of flax was grown in Southeast Georgia this year which was pronounced as high in grade as Irish or Belgian. There is no difficulty, under proper selection, of growing high grade flax fibre in any state having normal rainfall and on any lands which will successfully grow corn, oats, wheat, rye, potatoes, or cotton, and the crop is very profitable to the farmer. It is not exhausting to the soil, requires no fertilizer and is a rotational crop highly prized by the trained intensive farmers of France and Belgium.

In South and Southwest Georgia and in Florida the crop is sown in February and matures in from 80 to 90 days, leaving ample time for the planting of corn, cotton, potatoes or any other crop, on the same land, and giving the farmers in those regions a much desired spring crop. In sections of Georgia, Alabama, Mississippi and other cotton states where the boll weevil has made such havoc and occasioned such loss to the farmer, flax will grow as a substitute crop, requiring less labor and attention than cotton or any other rotational crop which he can produce. Moreover, as soon as the factories are erected for treating the crop, it will yield more money to the farmer.

"While at present there is a demand for only about

12,000 tons of flax in the United States annually, for use in the thread and linen crash industry, the demand abroad is large and insistent. There are today over 3,000,000 flax spindles idle in Europe; the price of flax has advanced from 25 cents per pound (before the war) to $1 and $1.50 per pound. There is, therefore, unlimited demand for flax fibre now, and will be for years to come, and at very high prices. The American textile manufacturer, as soon as he realizes that he can get a supply of the necessary raw material, will go into the manufacture of all grades of linen, because the business is highly profitable."

Put Your Shoulder to the Wheel.

Our illiterates and non-English speaking outnumber all the people that live in Nevada, Wyoming, Delaware, Arizona, Idaho, Mississippi, Vermont, Rhode Island, North Dakota, South Dakota, Oregon, Maine, Florida, Connecticut, and Washington combined.

There are eight millions of these people.

They will outvote the combined populations of greater New York, Philadelphia, and Chicago, or any state in the Union except New York.

These astounding facts demand the immediate consideration of the nation. The war has demonstrated some of our dangers from the large numbers of our foreign-born citizens who have not been definitely assimilated or Americanized. It also brought forth thousands upon thousands of men, native-born Americans for many generations, who can not read or write.

These eight million people must be educated at least sufficiently to read an American newspaper and to know something of what it means to be an American.

This is a national problem. The South leads in illiterates. The North leads in non-English speaking. Seventeen and one-fourth percent of the people of the east south central states are illiterate but 15.8 percent of the people in Passaic, N. J., can not read, speak or write English. Sixteen percent of the people of the south Atlantic states are illiterate and so are 13.2 per cent of the people of Lawrence and Fall River, Massachusetts.

To meet this problem Senator Hoke Smith has introduced in the Senate and Honorable William B. Bankhead in the House the Smith-Bankhead Americanization Bill; Senate Bill 5464, House Bill 15402.

This bill directs the Bureau of Education to co-operate with the several states in the education of the above mentioned peoples and in the preparation of teachers for the work.

The appropriations begin at once and end in 1926.

A state, to secure the money, acts through its chief school officer and shall not participate until it has required the instruction of illiterate and non-English speaking minors more than 16 years of age, in the English language for at least 200 hours per year.

Federal money shall be used for salaries or training teachers only and no Federal money shall be used for buildings or equipment or for support of religious or private schools.

Each state receives money in proportion to the number of her illiterates and persons unable to speak English as compared to the total number of such persons in the United States.

This is a move in the right direction and deserves the united support of all.

Prize Essay Contest in Industrial Economics.

The National Industrial Conference Board offers a prize of one thousand dollars for the best monograph on any one of the following subjects:

1. A practicable plan for representation of workers in determining conditions of work and for prevention of industrial disputes.

2. The major causes of unemployment and how to minimize them.

3. How can efficiency of workers be so increased as to make high wage rates economically practicable?

4. Should the state interfere in the determination of wage rates?

5. Should rates of wages be definitely based on the cost of living?

6. How can present systems of wage payments be so perfected and supplemented as to be most conducive to individual efficiency and to the contentment of workers?

7. The closed union shop versus the open shop: their social and economic value compared.

8. Should trade unions and employers' associations be made legally responsible?

The Committee of Award is composed of: Frederick P. Fish, of Fish, Richardson & Neave, Boston, Mass., Chairman of the National Industrial Conference Board; Dr. Jacob Gould Schurman, President Cornell University, Ithaca, N. Y.; Henry R. Towne, Chairman Yale & Towne Manufacturing Co., New York City.

The contest is open without restriction to all persons except those who are members of or identified with the National Industrial Conference Board.

Contestants are not limited to papers of any length, but they should not be unduly expanded. Especial weight wil be given to English and to skill in exposition.

The copyright of the prize manuscript, with all publication rights, will be vested in the National Industrial Conference Board.

Each competitor should sign his manuscript with an assumed name, sending his true name and address in a sealed envelope superscribed with his assumed name. No manuscript will be accepted the real authorship of which is disclosed when the manuscript is received by the Board, nor any which has been previously published in any way.

Manuscripts, to be considered in the contest, must be mailed on or before July 1, 1919, to the National Industrial Conference Board, 15 Beacon Street, Boston, Massachusetts, marked "For Prize Essay Contest in Industrial Economics."

The right to reject any and all manuscripts is reserved. The Board may, however, award honorable mention to several manuscripts and arrange for their publication in full or in part, at compensation to be agreed upon between the Board and the authors.

Some Devices at the Massachusetts Mills

Done into a story by Ye Editor himself

It was a raw morning with a threat of rain in the air, and something more than a threat on the ground, when our little Dodge paddled its way through the mud to Lindale, Georgia, and rolled up in front of the office of the Massachusetts Mills.

Agent Meikleham gave us his usual hearty greeting and led the way to the office, where, warmed by the snapping coals in the grate, cigars were lighted and the doings of people in and out of the industry discussed. After a time, in accordance with our usual custom, we inquired, "what have you that's new?" This led to a trip through the mill and a discussion of several changes that were being made, a mention of some of which appeared in the December number of Cotton.

Later, after returning to the office, we went to the sanctum of Master Mechanic VanTassel, where Agent Meikleham opened the conversation by saying, "Van, these boys want to see what we've got that's new, you'd better show 'em your new pipe finder and leak locator."

The Little Dodge and its Driver.

Van led the way to his desk on the top of which were three nicely polished wooden cases. One of these was easily recognizable as his steam engine indicating outfit, but the other two were strangers. As he took down the first one, Van remarked, "when I bought these devices they were entirely new to me, but now I wouldn't do without them. They pay for themselves every little while. Take this one for example:

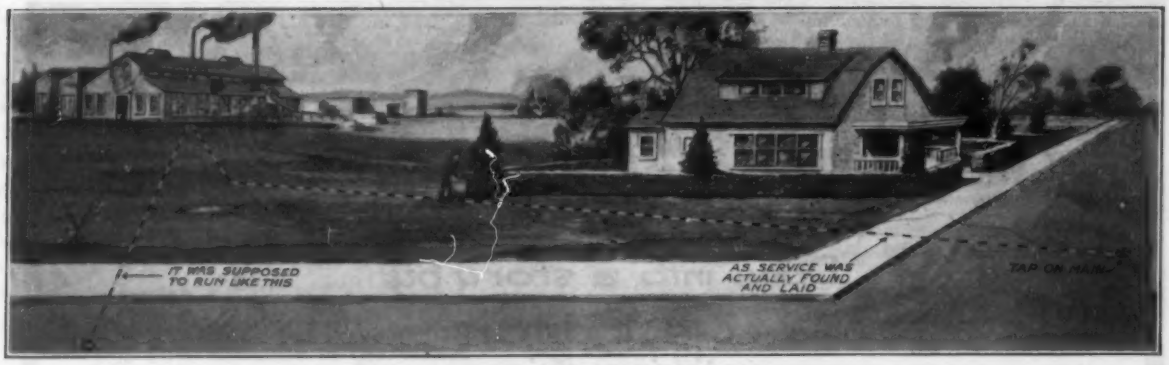
"This is known as a wireless pipe locator and finder. With it you can make a pipe underground produce a buzz like an electric buzzer. It makes no difference how long a pipe is, or where it is located, simply by connecting the wires with two more or less widely separated connections, the pipe between these connections may be made to buzz continuously until its exact location is staked out upon the ground above where it lies. The wire connections are fastened to the binding posts in the box and the switch turned. Then by adjusting the receivers over the ears and taking the receiver outfit or sound magnifier in the hands, it is easy to pick up the buzz from the pipe just as a wireless operator on a ship picks up the sound sent out from the sending station, frequently miles away.

"In operating, as you approach the pipe, you can hear a faint but distinct buzz, which continually grows louder as you approach the vicinity of the pipe. This continues until the sound receiver is directly over the pipe. The

The Wireless Pipe Locator and Finder.

location of the pipe may then be verified by moving the sound receiver, which is held flat in the hands, from side to side, the buzz from the pipe being distinctly heard when the receiver is on either side of the pipe, but stopping when it is held directly over it. The pipe may then be followed and staked to any point that may be desired."

This brought very forcibly to the writer's mind a personal experience which occurred at a finishing plant



THE WIRELESS PIPE LOCATOR IN USE.

a number of years ago. Many pipes had been installed at various times and by various men, but the only record on file was that necessitated by the rules of the insurance company which gave the location of the fire protection system. On this occasion it became necessary to locate and tap a service water main that was known to traverse the back yard from a point near the dye house to another general point where a tank was located on a nearby hill. The method adopted was the digging of cross ditches at points where the pipe was *supposed* to cross and continuing this process until the pipe was found. When it was finally located the back yard of this plant had the appearance of having been thoroughly ransacked for the supposedly buried treasure of Captain Kidd. An equipment like the one in use at the Massachusetts Mills would have saved many hours of unnecessary labor and accomplished the purpose desired quickly and well. A locator of this character will indicate the position of a pipe, even when buried twenty feet underground.

Van then produced the other little box which contained what is known as an electric leak locator and finder. This is a somewhat similar instrument, except that instead of producing a buzzing noise within itself, it is an instrument that hears and greatly magnifies vibrations. It consists of a special microphone-detector mounted on a brass plate with four legs connected with an amplifier battery and sensitive wireless ear receivers in multiple.

In using, it is simply necessary to set the microphone-detector over the pipe with the four short legs pressed into the earth, turn on the switch and listen. Any leak of a size needing attention can be heard if located within twenty feet in either direction from the detector. When it is desired to use the detector on a paved street, or on the cement floor of a dye house or other building, the four little legs are unscrewed and the detector plate laid flat upon the pavement or cement floor.

The theory of this device is that escaping water from a main is under pressure, it spurts from the opening and forces its way through the earth where it forms a pocket. The escape of this water into the pocket at the velocity caused by the pressure behind it churns the sand, earth and gravel and produces a roaring noise or vibration. The sound or vibrations of even a small leak several feet underground is, with this instrument, plain, distinct and unmistakable. A fair sized leak, one about equal to a ⅜-inch round opening, under ordinary water pressure, will make such a roaring noise in this instrument that one inexperienced in its use would be inclined to believe that the pipe below had actually burst.

Another feature about underground leaks is the general tendency of the water to follow the ditch in which the pipe was originally laid until it can escape through other soft ground to a nearby ditch or drain. Therefore, it not infrequently happens that a good sized leak may go on for months without being detected except through the loss of water from unknown causes. An example of this which well illustrates the point was that of a large cotton mill where a connection was made with a nearby city water system in order to provide an additional supply to its automatic sprinkler and fire protection systems. An eight inch main was connected to the mill fire mains and was protected from overpressure from the mill fire pump by a

USING THE ELECTRIC LEAK LOCATOR.

suitable check valve. The waterworks meter being located just outside the check valve. Presently the mill began to receive bills for city water, although the master mechanic in charge absolutely denied that he had drawn upon the city mains for any purpose. Some time later, when digging a ditch in the corner of the mill yard near a railroad track, an old drain was uncovered which seemed to be flowing quite a quantity of water. This was followed up to its source and found to originate in a broken three inch cast iron water main that fed the sprinklers of one of the cotton warehouses. The suitable repair of this leak settled the question of the bills from the city waterworks.

If the average mill man will think for a moment and figure the cost of a leak of a stream of water the size of a lead pencil at forty pounds pressure, he will at once realize the advantage of knowing that the pipes at his mill do not leak. An opening of this size, under a pressure of forty pounds, will leak approximately fifty cubic feet, or three hundred and seventy-five gallons per hour, this will total up to 270,000 gallons per month, which at an estimated cost of 15 cents per thousand gallons would be $40.50 per month. The mill man who provides his own water system and does not purchase from a public service company must not think that he escapes his loss thereby. Water that has to be pumped to his sprinkler tank has its equivalent value in coal, labor, oil and wear and tear on boilers and pumps. In other words, a tight pipe is much cheaper and more satisfactory than a leaky one, regardless of the source of the water supply.

The World Cotton Conference.

The City of New Orleans is looking forward expectantly to great happenings; history making happenings, perhaps, in one of her chief industries, when cotton men from all over the world will assemble there to hold a World Cotton Conference next October. October is a long way off, but there is much work to be done and many arrangements to be made in order to properly entertain the distinguished delegates that will assemble in the Crescent City on that occasion.

The last international cotton conference was held at Atlanta in 1907, and, if the attendance at that gathering is a safe index, at least a thousand delegates may be expected to assemble, many to take part in discussions that are expected to make for much in promoting the better mutual interests of the cotton men of the world.

America holds the key to the world's cotton situation. This is the reason why cotton conferences are held in this country rather than in Egypt, or India, or Peru, for all of these countries, and others besides, raise cotton. America's cotton crop is worth, every year, anywhere from seven or eight hundred million dollars to nearly two billion dollars, depending on the year. The crop of 1917-1918 was worth close to the latter figure, but this was because of war prices. The crop of 1911-1912 was worth approximately three quarters of a billion dollars, but these were peace prices.

By the same token the world's cotton crop of 1917-1918 was worth something like three and a half billion dollars while that of 1911-1912 brought but about a billion and a third dollars. These figures seem to qualify cotton as being a commodity of such international value and importance that conferences between the world's producers and users of the staple are necessary. They clear the atmosphere and make for a better understanding and a more cordial feeling among a great diversity of interests.

The conference is being promoted by the National Association of Cotton Manufacturers and arrangements are in the hands of a former president, J. R. MacColl, treasurer of the Lorraine Mills, Pawtucket, Rhode Island, and Rufus R. Wilson, secretary of the Association.

It is logical that such a world convention should be held in America because this country produces something like sixty percent of the world's cotton. It is logical that New Orleans should be chosen as a meeting place because it is a big southern city and can comfortably house a large body of strangers as it has often done before; because it is in the heart of the cotton growing district, and because it is the chief gulf sea-port of the country, sending out more cotton for export in 1918 than any other southern port. It is logical that the month of October should be selected as the conference date for the reason that the climate of New Orleans is at its best at that season of the of the year and cotton operations are at the peak of their activity.

Realizing that there will be many men, particularly from abroad, to whom the growing, and picking and ginning and compressing and otherwise handling cotton is a novelty, the city of New Orleans is arranging to have exhibition or demonstration fields of cotton of all the different grades and varieties planted and grown in close proximity to their city so that the strangers may get a close and intimate knowledge of how it is done.

At the conference there will be delegations from the numerous branches of the cotton industry in this country. The fertilizer men, the ginners and manufacturers of ginning machinery, the compress men, the warehousemen, the merchant, factor and broker, the railroad men and the steamship man, the cotton spinner and the manufacturer of textile machinery. The banks and bankers will be largely represented, too, because, every year they are carrying vast sums of money in loans with cotton as collateral.

Great Britain, operating forty percent of the world's spindles, will have a large representation. England needs our cotton; must have it, for without it her textile industry would fade into insignificance. France, Canada, Holland, Switzerland, Spain, Italy, Japan, Sweden, Norway and Denmark will be represented by delegations. These are cotton spinning countries that rely, largely, on the United States to keep their machinery turning over. Russia, China, Egypt, India and Peru will be on hand with representatives. In these latter countries no great amount of American cotton is used, but they are the chief cotton growing countries outside of the United States and are interested in what America does in the cotton line.

It is unfortunate that, in America, the handling of the cotton industry in its various phases and ramifications is not on the scientific, co-ordinated, up-to-date basis that it ought to be. There are many interests involved and they do not always pull together. The conference of 1907 brought out many of these defects and some, as a result were remedied. There is still room for much to be done that will make for better economies all around, and it is hoped and expected that the conference of 1919 will be productive of a better understanding and that beneficial results will flow therefrom.

Latin America.*

I cannot emphasize too strongly the importance of the Pan American commercial opportunity to the southern states and to Atlanta. In order that this great field lying south of us should be fully appreciated, let us consider some remarkable facts.

From Mexico and Cuba south to Argentina and Chile are twenty countries, occupying an area of nine millions of square miles, or three times the connected area of the United States, having a growing population of over eighty millions, and conducting an annual foreign commerce valued at nearly three billions of dollars. The part that the United States has played in Pan American commerce is far greater than is generally supposed and the record should encourage every manufacturer, exporter, importer, banker and shipper, of Atlanta and the South. Contrary to general impressions the United States has built up its trade with Central and South Amercia during the last fifteen years more rapidly than have Great Britian and Germany. Let us note some figures in confirmation of this remarkable statement. Fifteen years ago, the total value of the exports and imports of the United States were valued at less than $450,000,000. This total had grown to the last regular year before the war to $800,000,000. During the war the increase still piled up until our Pan American trade reached the astonishing volume of $1,750,000,000, or an unprecedented growth of nearly $1,000,000,000 in the last four years.

Noting some of the figures of Great Britain and Germany, we find to be true that in the last fiscal year before the war, namely 1913-14 the total commerce of Great Britain with Latin America was valued at $650,000,000, or $150,000,000 less than the total for the United States; that of much vaunted Germany for the same year was less than $500,000,000, or $300,000,000 less than the total of the United States. Again, let us note that whereas fifteen years ago Germany led the United States in the trade of two-thirds of the Latin American countries, yet in 1914, just before the war, the United States led Germany in the trade of two-thirds of these Republics. At the end of the war, the United States had a greater commerce with Latin America than all the other countries of the world put together.

The question now is: will the manufacturing, exporting, importing, financial and shipping interests of the country take advantage of the splendid position and opportunity which they now have and meet squarely and successfully the competition now ahead of them throughout this field with Europe on one hand and Japan on the other? Three great conditions are required to make the trade of the United States permanently the leader in the Latin American field. 1st. We must have an abundance of steamship lines with vessels flying the American flag, running from the Atlantic and Gulf Ports including such points as Savannah, Charleston, Jacksonville, Pensacola, Mobile and New Orleans, to the Gulf, Carribean and Atlantic and Pacific ports of Latin America. This condition is absolutely essential and bids fair now to be met. 2nd. There must be abundant banking facilities controlled by United States capital in every important city and port of Latin America. Atlanta and southern banks must cooperate in this representation. 3rd. The financial interests of the United States must provide the countries and private undertakings of Latin America with abundant capital to take the place of money formerly provided by Europe. If the United States will loan $1,000,000,000 to Latin America in the next five years, it will increase its trade correspondingly and enable it to out-distance all competitors.

*Extracts from the remarks of John Barrett, Director General Pan American Union, at a luncheon of the Rotary Club and Chamber of Commerce at the Piedmont Hotel, Atlanta, Feb. 22.

Essex Aniline Works, Inc.

The growth of the American dyestuffs industry as a whole during the last four years may well be called one of the marvels of recent industrial history. Many of the new companies formed since 1914, have come to stay and will continue to grow in productive capacity as well as in the variety and quality of their products, so that this country's present independence in the color field will be permanent. One of the new concerns, which in its brief existence has already made a remarkable record and has before it a very prosperous future, is the Essex Aniline Works, Incorporated, whose main office and laboratory is located at 39 Oliver street, Boston, Mass. In less than a year and a half this company has built up a million dollar business and has developed and put on the market more than a dozen different aniline colors, which on account of their quality and dependability have earned an enviable reputation.

The secret of the success of the Essex Aniline Works lies in the fact that each man in the organization has been selected for his ability to do well the special duties assigned him. The president, who is also the general manager, is especially fitted for the position he fills on account of his technical and highly specialized practical training in manufacturing. The vice-president, who is also sales manager, has an enviable record in the dyestuff industry, having been an important factor in one of the large German houses for many years, from which concern he brought with him to the Essex Aniline Works some high class salesmen as well as several experts in handling dyestuffs. The chief chemist has been very successful in producing new colors that stand with the best pre-war material and now has some excellent things which are to be offered in the near future. The manager in charge of the laboratory and and standardizing of dyestuffs is a man of wide experience, having held a similar position with a large German house. The work's manager has in the short time available succeeded in getting together a very efficient organization.

Some of the dyestuffs now being manufactured by this company which have been developed and put on the market, are as follows: Essex Chrysophenine, Essex Direct Yellow 2 G, Essex Direct Yellow CF, Essex Direct Pink, Essex Sulphur Brown R, Essex Sulphur Khaki A, Essex Chrome Green B, Essex Direct Yellow G, Essex Direct Orange R, Essex Direct Orange 2 R, Essex Direct Rose, Essex Sulphur Brown 2 R, Essex Sulphur Olive, Essex Direct Blue 2 B, Essex Direct Scarlet B, Essex Bismark Brown.

Making Americans

BY FRANKLIN K. LANE.*

It has never seemed to me that it was difficult to define Americanization or Americanism: "I appreciate something, I admire something, I love something, I want you, my friends, my neighbors, to appreciate and admire and love that thing too. That something is America."

The process is not one of science; the process is one of humanity. But just as there is no way by which the breath of life can be put into a man's body, once it has gone out, so there is no manner by which, with all our wills, we can make an American out of a man who is not inspired by our ideals and there is no way by which we can make anyone feel that it is a blessed and splendid thing to be an American, unless we are ourselves aglow with the sacred fire, unless we interpret Americanism by our kindness, our courage, our generosity, our fairness.

There is in every one of us, however educated and polished, a secret, selfish, arrogant ego and there is in every one of us also a real nobility, In this war I could see that there came out immediately the finer man, and that better self we must keep alive.

We expect that man to search out his immigrant neighbor and say, "I am your freind. Be mine as well. Let me share in the wisdom and instruct me in the arts and crafts you have brought from other lands and I shall help you succeed here."

There is no difficulty in this, if our attitude is right. Americanism is entirely an attitude of mind; it is the way we look at things that makes us Americans.

What is America? There is a physical America and there is a spiritual America. And they are so interwoven that you can not tell where the one ends and the other begins.

Sometime ago I met a man who is one of the advisors of the President of China and he told me of a novel suggestion which he thought might be adopted in that new Republic—that they should have a qualifying examination for members of Congress; that every man who announced himself as a candidate should prove that he knew what his country was, who its people were, what resources it had, what its prospects were and what its relations with foreign countries had been.

If I could have my way I would say to the man in New York, "Come with me and I will show you America," and I would say to the man in San Francisco, "Come with me and I will show you America."

I would give to the man whom I wished to Americanize (after he had learned the language of this land) a knowledge of the physical America, so as to get an admiration, not only of its strength, of its resources, of what it could do against the world, but that he might have pride in this as a land of hope and a land in which men had won out. I would take him across the continent. I would show him the 8,000,000 farms which went to feed Europe in her hour of need. I would take him out into Utah and show him that mountain of copper they are tearing down at the rate of 38,000 tons per day. I would take him to the highest dam in the world, in Idaho. And I would let him see the water come tumbling down and being transformed into power, and that power being used to pump water again that spread over the fields and made great gardens out of what 10 years ago was the driest of deserts.

I would take this man down south and I would show him some of its schools. I would take him up north and I would show him the cut-over lands of Wisconsin and Michigan, which are waste and idle. I would take him into New York and show him the slums and the tenements. I would show him the kind of sanitation that exists in some of our cities. I would show him the good and the bad. I would show him the struggle that we are making to improve the bad conditions. I would tell him not that America is perfect, that America is a finished country, but I would say to him, "America is an unselfish land. Its possibilities shall never end and your chance here and the chances of your children shall always be in ratio to your zeal and ambition."

America, we dare believe, will ever remain unfinished.

No one can say when we shall have reclaimed all our lands or found all our minerals or made all our people as happy as they might be. But out of our beneficent, political institutions, out of the warmth of our hearts, out of our yearning for higher intellectual accomplishment, there shall be ample space and means for the fulfillment of dreams, for further growth, for constant improvement. That is our ambition.

I would have that man see America from the reindeer ranches of Alaska to the Everglades of Florida. I would make him realize that we have within our soil every raw product essential to the conduct of any industry. I would take him 3,000 miles from New York (where stands the greatest university in the world to the second greatest university, where 70 years ago there was nothing but a deer pasture. I would try to show to him the great things that have been accomplished by the United States—250,000 miles of railroad, 240,000 schools—colleges, water powers, mines, furnaces, factories, the industrial life of America, the club life of America, the sports of America, the baseball game in all its glory.

And I would give to that man a knowledge of America that would make him ask the question, "How did this come to be?" And then he would discover that there was something more to our country than its material strength.

It has a history. It has a tradition. I would take that man to Plymouth Rock and I would ask, "What does that Rock say to you?" I would take him down on the James River, to its ruined church and I would ask, "What does that little church say to you?" And I would take him to Valley Forge and point out the huts in which Washington's men lived, 3,000 of them, struggling for the independence of our country. And I would ask, "What do they mean to you? What caused them, what induced those colonists to suffer as they did—willingly?"

And then I would take him to the field of Gettysburg and lead him to the spot where Lincoln delivered his im-

*Extracts from an address by the Secretary of the Interior delivered at the Hotel Astor, New York.

mortal address and I would ask him, "What does that speech mean to you? Not how beautiful it is! But what word does it speak to your heart? How much of it do you believe?"

And then I would take him to Santiago de Cuba and I would ask, "What does that bay mean to you?"

And I would take him over to the Philippines where 10,000 native teachers every day teach 800,000 native children the English language, and I would bring him back from the Philippines to the Hawaiian Islands.

In Honolulu I had a procession of school children pass before me and present me with the flags of their countries. There were represented every race, from New Zealand clear along the whole western side of the Pacific. They laid at my feet 26 flags.

I went from there to Mauna Loa, to a school, a typical school, in which there were Filipinos, Javanese, Chinese, Japanese, Portugese, Samoans, Australians, Americans, Koreans; and I said to the pupils, "Can anyone tell me why we are at war?" A little girl 13 years old, half Chinese and half Hawaiian, rose and said, "I think I can, sir." We were up on the side of the mountain, looking out over the Pacific and the only communication with the civilized world was across that ocean. "We are in this war," the child said, "because we want to keep the seas free—because we want to help those who need help." And I have yet to hear a better answer given.

And I would show the man how these children, whether Japanese or American, no matter what their source, stood every morning before the American flag and raised their little hands and pledged themselves to one language, one country, and one God.

And then I would bring him back to this country and say, "Grasp the meaning of what I have shown you and you will know then what Americanism is. It is not 110-000,000 people alone, it is 110,000,000 million people who have lived through struggle, and who have arrived through struggle, who have won through work. Let us never forget that!

There is a sentimentality which would make it appear that in some millenial day man will not work. If some such calamity ever blights us, then man will fail and fall back. God is wise. His first and His greatest gift to man was the obligation cast upon him to labor. When he was driven out of the Garden of Eden, it was the finest, th most helpful thing that could have happened to the race. Because when man passed that gate, he met a world in chaos, a world that challenged his every resource; a world that, alike, beckoned him on and sought to daunt him, a world that said, "If you will think, if you will plan, if you can persist, then I will yield to you. If you are without fibre—if you are content with your ignorance, if you surrender to fear, if you succumb to doubt, I shall overwhelm you."

The march of civilization is the epic of man as a workingman and that is the reason why labor must be held high always.

We have nothing precious that does not represent struggle. We have nothing of lasting value that does not represent determination. We have nothing admirable which does not represent self-sacrifice. We have no philosophy except the philosophy of confidence, of optimism and faith in the righteousness of the contest we make against nature.

We are to conquer this land in that spirit and in our spirit we are to conquer other lands because our spirit is one that like a living flame, goes abroad. And again it is like some blessed wind—some soft, sweet wind that carries a benison across the Pacific and the Atlantic. And we must keep alive in ourselves the thought that this spirit is Americanism—that it is robust and dauntless and kindly and hearty and fertile and irresistible and through it men win out against all adversity. That is what has made us great.

It is sympathetic. It is compelling. It is revealing. It is just. The one peculiar quality in our institutions is, that not alone in our hearts, but out of our hearts, has grown a means by which man can acquire justice for himself.

How best may we spread that spirit through the land—how best can we explain our purposes and interpret our systems?

Through the community council, through the school I am making an appeal to Congress on behalf of an appropriation which will permit us to deliver from bondage thousands, tens of thousands, millions of children and men and women in these United States—to liberate them from the blinders of ignorance, that all the wealth and beauties of literature and the knowledge that comes through the printed word can be revealed to them.

Congress will be asked to help all states willing to cooperate in banishing illiteracy. And I want you to help. We want to interpret America in terms of fair play; in terms of the square deal. We want, in the end, to interpret America in healthier babies that have enough milk to drink. We want to interpret America in boys and girls and men and women that can read and write. We want to interpret America in better housing conditions and wages, in hours that will allow a father to know his own family. That is Americanization in the concrete—reduced to practical terms. This is the spirit of the Declaration of Independence put into terms that are social and economic and I ask you to help us.

One of the most important lessons industrial America has learned from the war is that we must conserve our industrial man power and keep our workers continually productive. We must eliminate all hazards which even temporarily impede the efficiency of the worker.

Every practical shop man knows the delays, the production losses and the high cost of stoppages caused by breaking belt joints, to say nothing of the inconvenience and difficulty of repair and the damage to the belt. The Crescent Belt Fastener Company have just issued a new bulletin covering "The Crescent Principals of Belt Joining" which summarizes in short, compact phrases the reasons why many of the largest industrial plants in the country are standardizing Crescent Belt Fasteners throughout. This bulletin also contains a ready reference Service Chart by means of which a superintendent, a belt man or machinist can instantly determine the correct type of belt fastener to use for any condition of work.

Copies of this bulletin and service chart may be obtained by writing to the Crescent Belt Fastener Company, Service Department, 381 Fourth Avenue, New York. It is a good thing to have tacked up in the mill.

Distribution and the Traffic Manager

BY G. D. CRAIN, JR.

The term "distribution" has been taken over into the vocabulary of sales managers, and as ordinarily used refers now to the mode rather than the actual physical process of moving goods from the manufacturer to the user. That is, one speaks of "distribution" to jobber or dealer, considering this purely as a selling operation. The mechanical details of the movement itself, whereby the merchandise is taken up at one point and laid down at another, are considered relatively unimportant.

Yet textile manufacturers have had it emphasized of late that this physical operation is not only fundamentally important, but a great deal more difficult than the paper distribution accomplished by sales forces. Getting an order on the books in most lines of textile manufacturing has lately been simplicity itself; getting the goods from the mill to the customer is something else, and something a great deal harder to accomplish.

Furthermore, sales do not represent profits, but only the beginning of operations which it is hoped will prove profitable. When an order is booked, something has been accomplished. A lot, in fact, has been accomplished, but the salesman doesn't do the whole thing, by any means. The mill has got to produce the goods, the delivery of those goods to the customer has got to be arranged for, and the customer has got to honor the invoice before that highly important factor, net profit, is taken care of. And of late the delivery element is the thing that is giving most people in business plenty to think about.

It may be suggested here, of course, that many a manufacturer or selling agent has simplified his program in this respect by the simple device of selling his goods f.o.b. mill. Theoretically, an order taken under those conditions means that the responsibility and interest of the manufacturer cease when he is ready to deliver the merchandise at his railway siding. Practically, they do not, no matter how limited the legal responsibility of the shipper may become by reason of the use of the magic phrase, "f. o. b."

Detroit automobile manufacturers sell their product f. o. b. their factories. However, it is usually noted that you can walk into a local store of an automobile dealer anywhere in the country and buy a car without much difficulty. "F. o. b. Detroit" is a traffic term that is used not with reference to traffic, but with reference to selling: as a basis for price fixing, so to speak. The buyer actually gets the car f. o. b. wherever he happens to be.

In the same way, the textile manufacturer, regardless of the way in which he is "distributing" his product, and regardless of the terms of the order regarding liability for safe delivery of the product, has a responsibility and an interest in its delivery. Unless it is received by the consumer, the deal is of course not completed, and the order which was booked for that particular lot of goods is of no value as far as collecting the amount of its value is concerned. The manufacturer must deliver the goods; and hence distribution in the physical, mechanical sense is a very important part of any manufacturing business, and especially, under the conditions that have recently prevailed in the textile manufacturing business.

It was therefore interesting and somewhat significant to learn that one of the largest manufacturers of underwear in the country has recently organized a traffic department. For the first time in its many years' experience in selling goods, it has found it not only desirable, but necessary, to have a traffic department worthy of the name, and to have a man in charge who knows rates, who knows railroads, and who understands operating conditions thoroughly. This man, who is being paid a good-sized salary, is doing work that formerly devolved upon the shipping clerk, with the somewhat uninformed supervision occasionally vouchsafed by one of the officers of the company.

There are about thirty thousand important shipping points in the United States. It is estimated that one tariff published by the Southwestern Tariff Committee contains more than thirty-five million freight rates—and this is but one of nearly five hundred thousand tariffs and supplements which are in effect in this country. Moreover, the records in the Interstate Commerce Commission show that in an average period of ten days the number of rate changes reached forty-four thousand, or forty-four hundred per day. Then come special orders, embargoes, priority shipments, transfer charges, demurrage, and a thousand and one other details that call for a high power brain, an extended experience, and —oh, read the article!—Editor.

The shipping clerk in the average manufacturing plant learns a little about certain routine things He gets to know the rates to certain points where regular customers are located. Likewise he gets to know the rules and regulations of certain railroads and freight classification territories with reference to the handling of shipments. Consequently, as long as everything runs along smoothly, and no problems present themselves, the shipping clerk can bear the honors that go with the honorary title of traffic manager modestly and withal effectively.

But let a bunch of new rates become effective; let a few new rules emanate from the Director General of the railroads or the Interstate Commerce Commission; let an embargo or two be slapped on by carriers which have been in the habit of handling the bulk of the company's output—and what is poor Mr. Shipping Clerk going to do? He simply can't do anything. He has neither the equipment nor the experience to meet the emergency created by a condition of this kind, and consequently the whole organization suffers because the ability required to insure distribution of the product under unfavorable conditions is lacking.

As indicated, an officer of the company sometimes tries to make himself familiar in a general way with the traffic situation, so that he can help the shipping clerk out when anything turns up that is too intricate for the latter to handle. But there is just the trouble. Knowing traffic in

a general way doesn' help in a particular case, because each particular case has got to be determined by the facts which apply to it definitely and specifically. So the officer whose business it is to touch traffic occasionally instead of regularly is just as much handicapped by unusual conditions as the shipping clerk himself.

Furthermore, knowledge of rates alone, which may be secured by study of the business, especially if the number of accounts handled is comparatively small, does not help out much in the case of an embargo—and of late, meeting the emergencies created by embargoes has been the chief duty of most traffic men. In a case of that kind it is necessary to know railroads and routes with exceptional thoroughness, and likewise to have a knowledge of the personnel of the railways, so that if it is possible to obtain an occasional concession from the carriers, it will be secured.

The concern referred to above, which does a business aggregating millions of dollars a year, got along somehow without any real traffic service until a year ago, when traffic conditions became exceptionally bad. It does a great deal of direct business, which means that it handles a large number of relatively small shipments, instead of a few big ones, as is the case with a company which deals with other mills or with jobbers of finished goods. By the time all of the railroads got through plastering embargoes around, this underwear company was unable to move a wheel. It was blocked completely, and was unable to take care of the needs of its customers, regardless of the fact that the goods were finished and ready for delivery.

Under conditions of that kind, even an expert traffic man might not have been able to be of much help, but the trouble was that the textile company did not know just where it stood, nor just what it might have done to get out of the tangle it found itself in. Its lack of knowledge of the facts of traffic operations compelled it to stop still, when its officers would gladly have done anything they could have seen their way clear to do, as a means of relieving the situation in some way.

The result of this experience was a decision to hire a traffic manager. In looking around it was found that a lot of high-class men in the soliciting departments of the railroads had been taken off that kind of work, as a result of the taking over of the railroads by the Government, and many of them were available for industrial work. The company got in touch with a man of many years' experience in railroad work, and appointed him traffic manager, with the responsibility of organizing a traffic department, and putting the company in just as strong a position from the standpoint of distribution as it has always been in buying, manufacturing and selling.

It now realizes that it was trusting to luck on a very important feature of its business, and that it was overlooking a detail of no little importance. The new traffic manager has been of invaluable assistance already, has straightened out a lot of kinks, has lubricated the rails as far as relations with operating officials of the railroads are concerned, and has put the traffic end of the business in the best condition possible under the most difficult circumstances.

This company is spending several thousand dollars for work that was not performed before, and seems to regard it as a good investment. If the efforts of this man result in a speedier movement of merchandise to customers—as seems certain, after considering the facts—the interest on the capital released in this way will alone pay his salary many times over. In addition the customers will get better service and the officers of the company will have a chance to devote their energies to other things, with which they are better qualified to cope.

This is a class of technical work which seems to call for the retirement of the shipping clerk and the appointment of a real traffic manager.

For the smaller plant, where the added expense would be too great a burden, there is the Traffic Department of the State Manufacturers' Association, which usually places a high class and expensive man at the disposal of members on a co-operative basis and at a moderate cost.

Why We Established Sub-Level Prices.

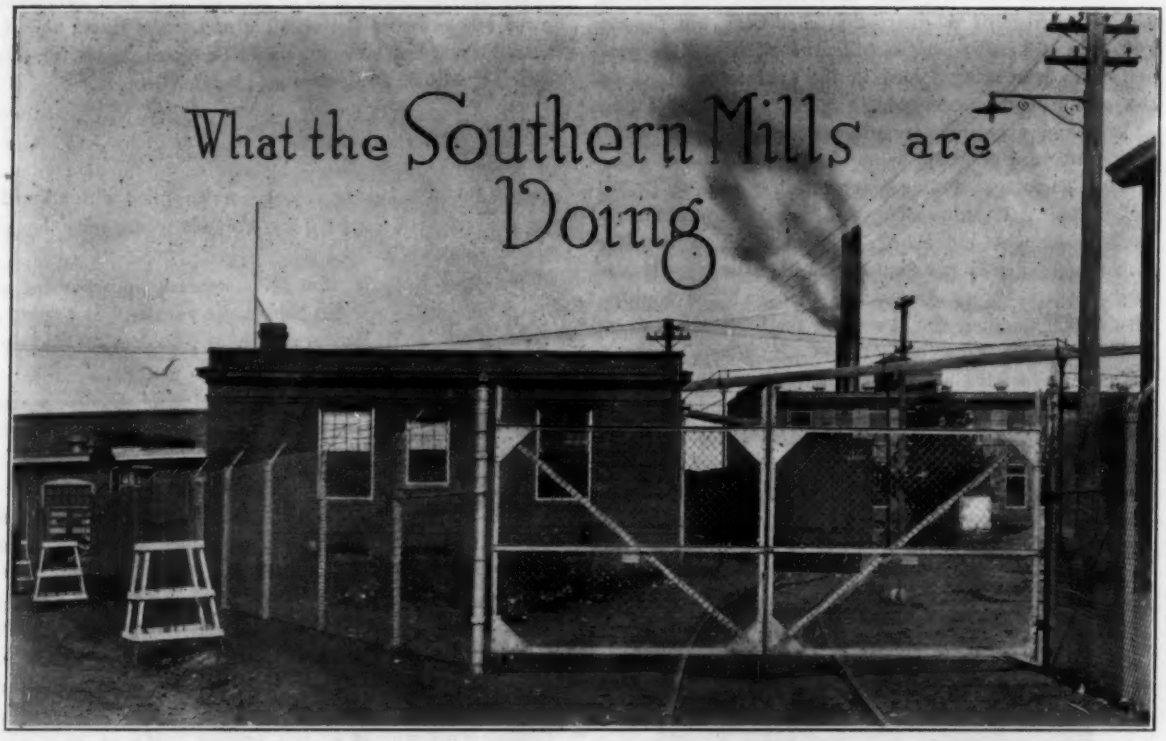
In a desire to create confidence in the trade as to the stability of prices, the Atlanta office of The Flintkote Company have sent out a letter under the foregoing title from which the following extracts are made:

"We accept the principle that selling prices should be based on market prices of raw material. Our reduction takes into consideration the present market. We went up with the market; to be consistent, we should come down with it. Our action was designed to counteract the instability in prices. The abandonment of any artificial price level removes the chief obstacle to the normal development of this industry. We have anticipated somewhat the lowest prices on raw materials which we can foresee, and have based our prices accordingly. It is reasonable to expect reductions in many commodities, thus clearing the way for the era of building which is in prospect.

"William B. Wilson, Secretary of the U. S. Department of Labor, urges manufacturers to keep the wheels turning, and makes it clear that prosperity is up to them. This is particularly true of manufacturers of building material. The building material tonnage is larger than any other single tonnage which our carriers handle. It has been estimated that 80 per cent of the cost of a finished building is labor; that is, figuring all labor from the original production of the lumber, brick, roofing, hardware, etc., to the completion of the finished building. If this is the case, it is the duty of all building material manufacturers to remove, just as far as it is possible for them to do so, all obstructions now in the way of a resumption of our building program, particularly because of its effect upon employment of labor.

If your factory is shut down through lack of business, you not only are not contributing to the economic welfare of the nation, but on the other hand you are positively participating in economic waste through failure to provide employment. From a selfish point of view, the same loss to the manufacturer is apparently unavoidable, and it is his privilege to elect whether he will take his loss in the form of shrinkage of inventory, plus business, in which case he gives the dealer, and the consumer, the benefit of his loss, or whether he prefers it in the form of accumulated overhead which is without benefit to dealer, consumer or labor."

"If a little care is exercised in assigning a cripple to a job in a factory, he will make an employee as profitable to his employer as the physically perfect man."



Courtesy Anchor Post Iron Works.
THE RAILROAD GATE AND THE NEW FENCE AT THE THOMASTON (GA.) COTTON MILLS.

The Cotton Manufacturer's Association of North Carolina met at Raleigh on January 28th to discuss several items of interest. It was decided to send a committee to Washington to try to secure some reduction in the taxes assessed under the new revenue bill, but thanks to a certain North Carolina congressman, not as much was accomplished as was hoped.

S. F. Patterson of Roanoke Rapids, N. C., was reappointed chairman of the legislative committee and the association went on record in support of Governor Bickett in regard to the school enforcement law. The association was already on record in this matter, having passed resolutions to this effect at the meeting in Asheville. It will be remembered that Governor Bickett in a recent message advocated a method of procedure which included the making of county superintendents of education ex-officio factory inspectors in their respective counties.

It was recommended and decided that the traffic and coal buying departments of the association be combined with those of the Cotton Manufacturer's Association of South Carolina in the fight against freight rate discrimination and George W. Forrester of Atlanta will represent both associations in this matter.

The executive meeting of the Cotton Manufacturer's Association of South Carolina held in Spartanburg on February 27th, recommended to the mills of that state a schedule of 55 hours per week beginning March 17th, 1919, and that no working day exceed 10 hours.

Probably the point of the most wide-spread interest during the month was the proposed labor movement on February 3rd which was referred to in these columns last month. Outside of Chattanooga, Tenn., and Columbus, Ga., little trouble was experienced among southern mills. The Chattanooga difficulty did not prove of wide extent. The trouble in the Horse Creek Valley section of South Carolina was limited to one or two mills. Also the difficulty in Columbus, which promised to be serious at one time, seems to be gradually wearing itself out as more operatives are going back into the mills, and as this is written several are operating in part.

On February 7th, the South Carolina house of representatives rejected by a vote of 69 to 23 a bill proposing to restrict hours of work in textile plants to 48 hours in one week and providing that no day exceed nine hours. The chief argument against the bill was made by a cotton mill operative, although it was introduced by a labor representative.

After the announcement of the Third Southern Textile Exposition for May 5th to 10th at Greenville, S. C., the Board of Governors of the Southern Textile Association met in Charlotte, N. C., and voted to hold the annual convention of the association at Greenville on May 8th and 9th, coincident with the exposition.

Beginning February 10th the majority of the 80 mills of Gastonia and Gaston County, N. C., went on a schedule of four days and three nights per week. Under this schedule, which will remain in operation until market conditions improve, the mills will be closed Thursday night, Friday, Friday night and Saturday. It is the hope of the manufacturers that the conditions which render this curtailment necessary may soon change. At present the finishing mills in New England and the East, which use the product of the southern mills almost in its entirety, are running on a considerably curtailed schedule.

Some other southern mills have reduced their working schedule because of reconstruction conditions, but the majority are still batting out a full production and the prospects for their being joined in the near future by those now on short time seems good.

A company is being organized at Dallas, Texas, with a capital stock of $500,000 to build a mill for the manufacture of denims and similar heavy cotton goods. C. R. Miller, of the C. R. Miller Mfg. Co., makers of overalls and similar products, and R. W. Higginbotham of the Higginbotham-Bailey-Logan Company, wholesale drygoods, are promoting the proposition. The plant will be equipped with 10,000 spindles, 250 looms and the necessary preparatory machinery. Lockwood, Greene & Company of Boston and Atlanta are the architects and engineers in charge.

Another new mill which has been announced will be known as the Palmetto Damask Mills of Gaffney, S. C., on which construction will begin at once. The men behind the proposition are H. D. Wheat, H. C. Wheat, B. A. Holmes and Dr. W. K. Gunter. A high grade of damask will be manufactured and the finishing will be done at the plant of

HARTSVILLE (S. C.) COTTON MILL Y. M. C. A. BUILDING.

the Irene Mills, close by, which are controlled by the same people.

The Exposition Cotton Mills at Atlanta, Ga., are installing six pairs of boilers of the high pressure type for the new power plant they are building. These, with suitable prime movers and dynamos, will amply protect this plant against a power shortage such as many mills experienced last fall.

The Brandon Mills at Greenville, S. C., are to spend $300,000 in improvements in and around the mill village, as well as to the mill proper.

Much landscape work is to be done at the village of the Judson Mills at Greenville, S. C.

The Lawrenceville (Ga.) Cotton Mills were purchased for $70,000 from C. M. Plowman, Philadelphia, Pa., by the Southern Trading Corporation, Winder, Ga., composed of T. A. Maynard, Lee S. Radford, John M. Williams and Dr. G. W. DeLappierriere, all of Winder; it is reported that the output of the mills will be more than doubled.

Mays Mills, Inc., Mayworth, N. C., are remodeling and painting all the old houses in their village. All streets in the village are being graded and it is understood they will be surfaced and cement sidewalks laid as soon as possible.

A large public garage is being erected by the company for the convenience of the employees who have automobiles.

The Massachusetts Mills of Georgia have been purchased by the Massachusets Cotton Mills of Lowell, Mass., and H. P. Meikleham has been appointed Southern Agent for this company, with headquarters at Lindale, Georgia.

The Alexander Mfg. Co., of Forest City, N. C., the new 10,000 spindle yarn mill that is being built by J. F. Alexander and J. R. Moore, is to have an up to date village equipped with bungalow type houses supplied with all modern conveniences, parks, play grounds, community house, school, church, etc.

The Blue Ridge Cotton Mills, recently incorporated at Blue Ridge, will build a 3,000-spindle yarn mill at Connelly Springs, N. C. B. M. Spratt, Jr., is president of the company, which is capitalized at $100,000.

The Norwood (N. C.) Manufacturing Company has completed an addition to their plant. They will double their carding and combing capacity and discontinue night work.

The Millen (Ga.) Cotton Mills Company have decided to install looms for weaving tubular goods from ply yarns. At present the mill operates spindles only, having no looms.

As a result of proceedings instituted by the Citizens National Bank, Gastonia, N. C., the Lloyd Cotton Mills, Mariposa, N. C., have been placed in the hands of a receiver. A. B. Armstrong, Gastonia, has been named as receiver. It is understood that the owners of the Lloyd Cotton Mills will bring suit against L. Lloyd, of Chapel Hill, N. C., and associates for the recovery of the purchase price. The present owners of the mill property, the Lloyd Cotton Mills, Inc., bought it from Mr. Lloyd some months ago.

W. A. Handley Manufacturing Co., Roanoke, Ala., is enlarging the main building of its plant, the West Point Iron Works, West Point, Ga., having construction contract. The additional space will be used for spinning and carding; additional machinery is being installed.

The Fairfax (Ala.) Mills, which were recently noted as awarding a contract for the erection of a weave shed, will install 5,000 spindles, 140 looms and accompanying equipment. This will give them a total equipment of 31,000 spindles and 814 looms.

The Cotton Manufacturers' Association of Georgia will hold its annual convention at Atlantic City on Monday, May 26th, the day preceding the the American Association meeting.

The recent dinner of the Converters' Association tendered in honor of Charles L. Bernheimer, the retiring president, in the Rose Room of the Hotel Plaza, was highly successful. Julius Siegbert, the newly elected president, who also acted as toastmaster, reviewed the activities and the success accomplished during the leadership of Mr. Bernheimer. The association in grateful appreciation of Mr. Bernheimer's untiring efforts in their behalf, presented him with a beautiful desk set, which Mr. Bernheimer accepted in his eloquent and hearty way. Julius Henry Cohen made a masterful and stirring address, and other speakers of the evening were Arthur Lesher, vice-president, and ex-president Frank Worrall. The arrangements for the dinner and entertainment were looked after by the committee of which Joseph Nathan was chairman.

The New England Mill Situation.

Production in all lines is very much restricted in this section owing to the dearth of new business and the unwillingness of mills to go on accummulating goods at high cost. In some large centers such as Fall River and New Bedford, much less than 70 per cent of the normal output was obtained during February. Several mills were wholly or partly shut down and nearly all are running short time.

Labor troubles did not become as serious as it was feared they might a month ago. The mills have generally conceded a 48-hour week on a 48-hour pay basis. In some cases, workers not represented in the American Federation of Labor have struck to obtain a basis of 54-hours pay for 48-hours work but this has been met with such opposition from workers and the public that the strikers have made little headway. In Lawrence the cotton goods sections of the Pacific and Arlington mills, and the Everett Mills were affected more by strikes from the cause referred to than was true of mills elsewhere, although in various instances troubles of a few day's duration occurred as a consequence of the efforts of some radical unionists to precipitate disorganization.

Piece workers accepted the new rule of 48-hours work and 48-hours pay without any question. The day workers in cloth rooms, and some other departments made objections for a time. If there were work enough to supply all with employment it seems quite probable to the mill men that the new schedules would not have gone into effect with so little friction. In Rhode Island more resistance was made to the new schedule on the part of manufacturers than was the case elsewhere but toward the end of the month, after it was found that mills were accepting the situation in southeastern Massachusetts, it was decided to make the changes. It is stated that no such radical change in mill policy has been made at one time in the history of the business here as this has been and it was brought about primarily by a feeling that the present was an opportune time to put higher cotton goods values across to consumers as a consequence of war's changes.

In the early stages of the agitation for a uniform work day in the cotton industry, in accordance with the requests of the American Federation of Labor, manufacturers seemed to be a unit in declining it. But some of the leaders in the wool industry felt that the time had come to lessen the short hour agitation that always emanated from textile circles and the way to do it was to place the industry on a parity with other industries, in the matter of general working conditions. Objections previously urged, to the effect that textile values were relatively lower than other industrial and commodity values, hence labor should be relatively lower, were not as well founded as in past periods, because of the rapid rise in war time prices. It was contended that consumers could now be forced to accept the higher relative prices for textiles, as permanent, better than at any previous time, and this had weight in causing some manufacturers to change their minds on the whole subject.

The addition of this added burden of cost upon production will have to be worked out ultimately in mercantile channels. Unfortunately the demand has fallen so flat for many kinds of goods that it is difficult to show how higher relative costs are to be obtained or covered up in prices. Many goods have actually gone below the cost of production during the past few weeks and that has served to increase the idleness in mill centres.

This condition, the mill men say, will eventually bring about a cure of many of their troubles arising from the independence of workers who found employment easy at all times, and they do not look upon the curtailment of production as an evil at this time. While there has been no specific reduction in the scales of wages paid, it is not necessary now to pay day workers anything they ask, and those who are able to find work are more willing than they have been for three years to turn out a satisfactory product. It is expected that the final working out of the new working week may take several months, but resistance on the part of the operatives is certainly not as menacing as it was, and much less apprehension of future difficulty is expressed.

Prices declined a great deal in cloths as the month progressed and it was not until well toward the end of the month that the reaction started. As low as 8½ cents a yard was touched on 38½ inch 64 x 60 print cloths in the New York markets, but later there was some reaction so that the price touched 8¾ cents. Fall River was not a free seller at any time and did not get to quite such a low level for the few spot goods disposed of. But other lines of odd goods were affected and there was a steady decline in values. Sateens dropped to a basis of 57 cents per pound for goods that were bringing over 80 cents a pound early in January.

The revision of print and percale prices was a drastic one, participated in by the American and Pacific print works and others. Staple American indigo prints were reduced to a basis of 12½ cents from the previous open price of 19½ cents, while a 4-4 64 x 60 percale was dropped to 15 cents a yard from 24 cents. It was also stated that further declines occurred in unbranded bleached cottons, so that at one time during the month, as low as 11¾ cents was accepted for a 4-4 64 x 60, compared with prices of over 20 cents in the fall of last year. In the face of declines of this character, it was to be expected that jobbers and converters would hesitate in buying. For several days after the new prices were named on printed goods very little new business came forward but ultimately buyers began placing small orders for quick delivery and at this time there seems to be some improvement.

The gingham markets seemed to hold steadier after prices were revised, than almost any other cloth markets, the reason assigned being that the surplus of the well known brands was not large in any quarter. Prices were not cut so drastically on these goods, the new price on Amoskeag staples being 17½ cents, compared with the previous government price of 21 cents, or the agents' net price of about 19 cents. Some of the chambrays were cut relatively more than the staple ginghams in order to stimulate forward orders in the cutting trades.

The markets on narrow flannellettes were greatly disorganized by the constant price cutting on the part of

small producers who were eager to secure mill orders for fall. On one line of goods that was priced at 20 cents at the opening, it was stated that the price was cut to a basis of 16½ cents net, before it appeared clear to the sellers that the lower the price went the fewer orders came forward, and the greater uncertainty was manifested by the buyers. The Amoskeag Company refused to enter upon any price cutting but stood by its policy of guaranteeing prices till the date of invoicing. The volume of new business booked has been less than usual on all narrow napped goods, but on wide goods and plain domets it is stated that a very fair trade has come forward in some instances.

In New Bedford and other fine goods centers recovered conditions seem far off. New business on wash goods has come forward very slowly to the converting trade and the converters have been unwilling to buy more gray goods until they saw an improvement in finished goods. Finishers have not been willing to make lower prices on small lots and converters have been unwilling to press hard for business on large lots so that the readjustment of finishing conditions has seemed slower than has been true in some other divisions of the industry. It has been well known that wages in finishing plants went to relatively higher levels than was the case in fabric mills. This was due to the ease with which common labor found employment in munition factories and other war work. These high wage scales cannot be revised by posting notices and the idleness now on is effecting its own cure.

Many of the finishers have operated less than half of their plants during the month and those that have done any volume of business all this year were engaged in completing war business rather than in catching up on civilian work. The latter has not come forward freely.

The chief matter of interest in machinery circles is the ability of all the shops to secure more labor than they can employ for the moment. Numbers of their old workers are coming back and all of the shops now have waiting lists of employes. New business is hesitating but many of the shops are now at work completing long delayed orders. A number of machinery concerns have men in Europe and elsewhere looking over plans for new mills suggested by various parties in interest, and if the financial situation clears up it is believed that many foreign orders will be booked. In fact, the opinion generally prevails among the machinery men that the question of getting work will not be the serious one, but the question of deciding which work shall be financed from this country in the near future will be the one to be answered. Domestic business is comparatively small.

It might be inferred from the many troubles indicated in the above summary of the situation in New England today that pessimism is predominant. On the contrary, most of the leading manufacturers and financiers are inclined to be very optimistic about the long future of cotton manufacturing. They believe we are passing through a period of readjustment that may continue even into the fall months but the corrections that are being applied to abnormal war conditions are, in their opinion, gradually making a foundation from which business will rise rapidly and become broadly active. Some manufacturers expect the recovery to begin just as soon as the government loan is out of the way, while others do not look for much until the August cotton reports come to hand.

While manufacturers have more cotton than they can use for some time at the present restricted ratio of production, they look upon the movement to restrict the growth of cotton artificially in this country as on a par with the burning of corn and other ill-timed agricultural acts in the West some years ago. They believe that there will be a good market at a good price for all the cotton that can be grown, and not to grow it, and create real wealth, will be suicidal for the United States.

Cotton Comment.

BY H. AND B. BEER.

While the market has ruled erratic the past month owing to the unsettled conditions in the trade, there is more stability noted of late in values, due to the belief that prices for goods and the raw material have about reached a point when buying will be resumed on a broader scale.

Excepting linters, the use of which have been curtailed because of the smaller quantity of powder being made since the armistice was signed, consumption in the United States of lint cotton was larger than recent press reports would indicate.

Compared with last season mills of the United States consumed during January 557,000 bales of lint cotton vs. 524,000, of linters 7,000 against 70,000, making a total for the month of 564,000 compared with 594,000.

For the first six months of the season the mills of America consumed 2,952,000 bales vs. 3,308,000, of linters 375,000 against 494,000, making a total of 3,327,000 bales compared with 3,802,000.

In comparison with last year mill stocks in the United States on January 31st, were 1,669,000 bales vs. 1,655,000, in public storage in the United States 4,576,000 against 3,609,000, making a total stock, visible and invisible in the United States, at the close of January in the United States of 6,245,000 vs. 5,264,000.

At the close of December mill stocks in America were 175,000 bales larger than on corresponding date last year. At the close of January they were only 14,000 larger than one year ago, showing a relative loss for the month of 161,000 bales.

A feature of interest, which argues well for the future, is that there has been an increase during January in active spindles in the United States of 203,000, numbering at the close of January the largest on record—33,856,000 vs 33,653,000 one year ago.

Thus far this season the South has marketed 8,408,000 bales against 9,502,000 to even date last season, and, as noted in the stock in public storage in this country at close of January, the South has nearly 1,000,000 bales more to market than came into sight after this time last season.

Because of the recent big decline in the price of the staple, due to the world changing from a war to a peace basis, which resulted in the cancellation of large allied government orders for cotton goods, and owing to the large stocks in the South, a movement has been started to

have farmers reduce their acreage in cotton this year one-third and to grow more of foodstuffs for home consumption.

Grain and provisions are selling at a very high price and are likely to remain dear for another year or two. On that account, and because of having a surplus of nearly 1,000,000 bales more than one year ago, merchants and bankers in the South are supporting the movement for a drastic reduction in this year's cotton acreage.

As yet there has been no material improvement in the export situation, which is rather disappointing, and it is feared that sufficient tonnage will not be available during the remainder of the season to bring foreign shipments up to early predictions.

This feature is being used as another reason why the cotton acreage should be cut materially this spring, as there is no telling how long it will be when shipments of cotton will be possible to Germany and Austria.

There is a fairly good demand for white cotton, but low grades of which there is a large stock in the South, remain neglected. In consequence the value of low grades has been reduced to a discount relatively greater than ever experienced by the trade.

Present levels for low grades, now below the cost of production, should appear very attractive to spinners who may be able to use this character of cotton, and it is thought that the buying of low grades will improve for account of domestic and foreign spinners, as it is probable that Germany and Austria, after peace is signed, will be large buyers of the low grades.

Lancashire Notes.

BY AN ENGLISH CORRESPONDENT.

There has been no change in the amount of machinery run or the hours worked in the mills since last I wrote. The Cotton Control Board has announced that for the present no additional machinery must be put in motion, but it is noteworthy that at the same time it stated that it was doing all possible to get cotton operatives out of the army. As a matter of fact, even if other factors would allow of full time running of all machinery, the labor shortage would for the present make it impossible to bring about so desirable a state of affairs.

One important change in connection with the Control Board's administration has, however, taken place. The Board has ceased paying allowances to unemployed operatives. This is not because no one is unemployed, but is a consequence of the widespread displacement of labor and general industrial dislocation which followed upon the signing of the armistice. To meet this situation the government instituted a system of unemployment donation to all who were out of work, and in this scheme cotton-workers, like every other class of employees, were embraced. Thus government pay has now entirely taken the place of pay from the Control Board, except in the cases of adult men and young women. In these cases the government allowance is respectively one shilling and two shillings below that of the Board, and the Board makes up the difference. The levies upon the employers continue, evidently with a view to a possible resumption of payments from the Board. The government scheme is only to run for thirteen weeks, and that period will soon have expired. It may, of course, be renewed, and judging by the general industrial outlook in this country, I should say it is likely to be. Should it lapse, however, the Control Board will presumably take up again the payment of allowances, but unfortunately it is too much to hope that by the time the thirteen weeks have expired, cotton trade conditions will sufficiently approximate the normal to obviate the necessity of any special provision for unemployed operatives.

It seems hardly too much to say that so long as the cotton industry lasts, the year 1918 will be spoken of as a golden year for spinning firms. In the past twelve months margins have reached a height which before the war no one would have conceived possible, and when it is remembered that in the old days of peace profits were made with margins round about threepence and fourpence, there can be no doubt that spinners have had a time the like of which they will in all probability never have again. This holds good even remembering that the cost of every factor of production has increased, so wide is the gulf between the margins common in pre-war days and those of last year. The following table is from a recent cotton circular issued by Messrs. Niell Bros., and speaks for itself:

12th Dec.	1918	1917	1916
32's Twist	41.50	35.75	17.25
Good Mid. American	21.40	2284	10.95
Nominal margin 12th Dec.	20.10	12.91	6.30
Against on 14th Nov.	29.87	9.42	5.34
Against on 17th Oct.	31.95	6.58	4.89
Against on 12th Sept.	29.77	7.35	4.58
Against on 15th Aug.	29.62	6.10	4.50

It will be seen that the gross margin on Dec. 12th, 1916, was 6.30 pence. On the corresponding date in 1915 it was 4.09 pence, and on the same date of 1914 only 2.73 pence. A comparison of the 1914 and 1915 figures will show those of 1918 will give some idea of how profitable cotton-spinning has been the past year.

Statistics issued by the Board of Trade very strikingly illustrate how throughout the period of the war a decrease in the quality of raw cotton imported has gone hand in hand with the rise in its value. In 1914 there were imported into this country 18,641,333 centals of 100 pounds of all classes of cotton, the value of which was £55,350,626. As against this, for the first eleven months of 1918 the importation amounted to 13,416,362 centals, whereas the value had more than doubled, and stood at £134,982,113. We may illustrate this tendency for the past three years by the following table, the figures in every case being those for the first eleven months of the year:

	Quantity Centals	Value £
1916	19,806,321	75,204,974
1917	14,991,636	99,772,670
1918	13,461,362	134,982,113

These figures, as already stated, include every kind of cotton, but now let us draw a comparisin in respect to American cotton only.

	Quantity Centals	Value £
1914 (twelve months)	12,844,347	34,958,341
1918 (eleven months)	8,662,863	83,928,372

The past year, generally speaking, has been a bad one for the export of piece goods, though the French and Egyptian markets were astonishing exceptions to the general rule. In 1914 the yardage of cotton piece goods sent to France was 17,802,000 and the value £494,053, whereas for the first eleven months of 1918 the figures were respectively 169,654,900 and £9,767,381. Even this large total of yardage was behind that of the record of 1915, namely 220,376,700 yards. The value of this latter quantity was £5,472,012 which, compared with the 1918 value in the light of the lesser quantity of that year, gives an excellent idea of the rise in prices.

The movement among the operatives for a reduction of hours has been growing steadily for some time and a special conference of all the unions is being called for the purpose of discussing the question. At this conference 44 hours a week will be put forward as a basis of discussion. It is too early yet to state with any degree of exactness what the outcome of this movement will be, but it may be said with certainty that the present 55½ hours week will disappear before long. There is a marked tendency in this country towards reduced hours, largely as a result of war experience and experiment of the relation of output to hours and the increasing attention which is being scientificially devoted to the subject of industrial fatigue. In the cotton trade the movement among the operatives has been stimulated by the recent reduction of hours in engineering shops from 52 to 47 per week.

The Yarn Market.

The yarn market for the past month was almost universally dull. The slackening in the demand for knit goods, owing to the buyers holding off for possible price reductions, had a good deal to do with the yarn conditions. Also, the labor difficulties throughout the northern section had a tendency to slacken the market to some extent.

Early in the month this labor situation was the prevailing feature and owing to the slackening in demand there was a decided softening on the prices of yarns held in dealers stocks. However, spinners prices continued firm inasmuch as there seemed little possibility of making yarn at a profit under the present labor and raw material conditions, unless a suitable price was asked for the product.

Later in the month it became evident that curtailment among the mills would be necessary in order to maintain prices and prevent a flooding of the market with unused yarns. There was a falling off in the inquiries for carded yarns on cones, although there was quite a variation in the prices reported by the several buyers. Sales were reported as low as 38 cents, basis of 10s and as high as 47½ cents, basis of 10s. Another sale was noted for 100,000 pounds of 22s cones at 45 cents.

Towards the close of the month the tendency of carded weaving yarn prices seemed to be downward. The inquiries for combed yarns were spotty and the demand was smaller than the supply. Sales of 16s cones were made for 60 and 61 cents, 18s cones sold at from 62 to 65 cents, while a sale of 50s 2-ply combed peeler skeins were made for 90 cents.

Following are recent quotations on the Philadelphia market:

Southern Single Skeins.

4s to 8s	39	@40	10s	40	@41
12s	41	@42	14s	42	@43
16s	43	@44	20s	46	@47
24s	50	@52	26s	53	@54
30s	58	@59			

Southern Single Warps.

8s	41	@42	10s	42	@43
12s	43	@44	14s	43	@44
16s	45	@46	20s	46	@47
26s	54	@54½	30s	59	@60
40s	70	@71			

Carpet and Upholstery Yarns in Skeins.

8-4 slack 8-3-4 hard	40	@41	9-4 slack	41	@42

Southern Two-Ply Skeins.

8s	40	@41	10s	41	@42
12s	42	@43	14s	43	@44
16s	44	@45	20s	46	@48
24s	51	@52	26s	54	@55
30s	55	@57	40s	70	@71

Southern Two-Ply Warps.

8s	41	@42	10s	42	@43
12s	43	@44	14s	43	@44
16s	45	@46	20s	45	@48
24s	52	@53	26s	54	@55
30s	55	@57	40s	70	@72

Two-Ply Combed Peeler Skeins.

20s	68	@70	24s	72	@73
30s	75	@78	40s	82	@85
50s	90		60s	95	
80s	$1.35	@1.45			

Southern Frame Spun Carded Yarn on Cones.

8s	39	@41	10s	40	@42
12s	41	@42	14s	42	@43
16s	43	@44	18s	44	@45
20s	44	@45	22s	42	@46
24s	45	@48	26s	47	@50
30s	50	@52	40s	70	@72
30s tying-in	47	@48			

Northern Mule Spun Carded Yarn on Cones.

10s	46	@47	12s	47	@48
14s	48	@49	16s	49	@50
18s	50	@51	20s	51	@52
24s	53	@54	26s	54	@55
30s	55	@56	40s	74	@75

Northern Mule Spun Combed Peeler Yarn on Cones.

10s	65	@66	21s	66	@67
14s	67	@68	16s	68	@69
18s	68	@69	20s	69	@70
22s	70	@71	26s	73	@74
30s	76	@78	36s	83	@85
40s	88	@90			

A New Catalog.

A new catalog is just off the press for the Mitchell-Bissell Company, 251-255 Fourth Avenue, New York City, manufacturers of porcelain, enameled iron and glass for textile machinery. It is of interest to note in this connection that the equipment of the company for the manufacture of porcelain guides for textile machinery has been greatly increased, about 75 per cent more production being available.

This new catalog, which may be secured by interested people on application, contains illustrations of more than four hundred new patterns.

Edw. R. Ladew Company, manufacturers of Ladew leather belting with factory and general offices at Glen Cove, New York, announces important changes in its southern organization, made with a view to more active efforts in the south. O. S. Horton has been appointed manager of the southern branch, with headquarters at Charlotte, N. C., and territory covering all states south of Maryland, West Virginia, Kentucky and Arkansas, west to Texas. Walter Carr, formerly of the New York office, is assistant branch manager. Several new salesmen have been added to the organization; and a large stock of Ladew belting will be carried at the Charlotte office and disposed of through distributors located throughout the territory.

COTTON MANUFACTURING.

The Production of Narrow Fabrics.

BY THOMAS WOODHOUSE.

FINAL INSTALLMENT.

The surfaces of all the foregoing fabrics described are approximately flat, but, if for any special purpose extra strength or stiffness is essential, or ornamentation desired, groups of threads or single thick threads may be introduced into the warp at intervals and thus produce striped effects in the fabric in addition to the strength and stiffness. Thus, a narrow band or webbing may be made as follows from comparatively thick threads of cotton, linen, hemp or jute according to requirements:—

12 threads 2 ply yarn drawn singly.
6 threads 2 ply yarn drawn in one eye.
24 threads 2 ply yarn drawn singly.
6 threads 2 ply yarn drawn in one eye.
24 threads 2 ply yarn drawn singly.
6 threads 2 ply yarn drawn in one eye.
12 threads 2 ply yarn drawn singly.

—

90 threads

and the sett may be arranged to yield the necessary width of webbing.

Somewhat similar striped effects may be made with the foregoing double plain weaves, in which case one, two or

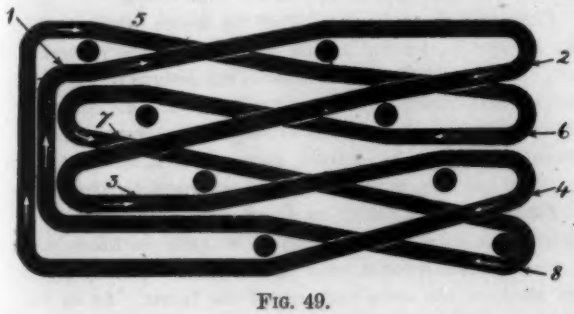


Fig. 49.

more binding threads would probably be introduced among the group of 24 threads or other number which occupied the position in the double plain cloth corresponding to this flat place in the single cloth.

The introduction of colored warp threads open up a large field for ornamentation in these narrow fabrics, but this phase of the subject cannot be entered into at present.

Multiple narrow fabrics are sometimes made in which no extra binding threads are employed, but in which the ordinary warp threads interweave with the picks of filling to stitch or bind the various cloths together. Such multiple cloths are more difficult to make than the ones already described; the only advantage in the process of manufacture is that, with judicious selection of the stitching points, all the warp threads may come from one warp beam.

The general principles involved in the design of these cloths can be demonstrated by one complete set of examples, and that which we propose to adopt is a 4-ply plain cloth.

Fig. 49 illustrates 8 warp threads, shown in solid circles, and 8 filling picks numbered 1 to 8; the short white arrows on the picks indicate the direction which each pick follows.

The design for this structure appears in Fig. 50; there are four units of the design, those in solid black being identical with the original unit in the left hand bottom corner; in this design:

Threads 1 and 5 belong to the first or top cloth.
Picks 1 and 5 belong to the first or top cloth.
Threads 2 and 6 belong to the second cloth.
Picks 2 and 6 belong to the second cloth.
Threads 3 and 7 belong to the third cloth.
Picks 3 and 7 belong to the third cloth.
Threads 4 and 8 belong to the fourth cloth.
Picks 4 and 8 belong to the fourth cloth.

and all the cloths are plain.

The numerals on the original unit design have the following significance:

No's 1 represent plain weave (warp lifted) in first cloth.
No's 2 represent plain weave (warp lifted) in second cloth.
No's 3 represent plain weave (warp lifted) in third cloth.

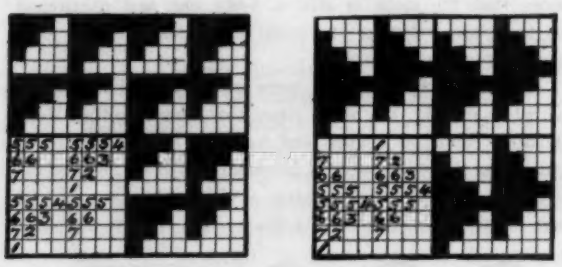


Fig. 50 and Fig. 51.

No's 4 represent plain weave (warp lifted) in fourth cloth.
No's 5 represent threads of first, second and third cloths lifted when picks of fourth cloth are being inserted..
No's 6 represent threads of first and second cloths lifted when picks of third cloth are being inserted.
No's 7 represent threads of first cloth lifted when picks of second cloth are being inserted.

The picks of filling commence, as usual, with number 1 at the bottom of the design, and the reader will be able to see that when the warp threads are lifted in the order indicated, the structure will be as shown in Fig. 49. It will also be seen that the four distinct plain cloths are untied, that is not bound together by what are known as stitching points, and that whereas the right hand edge of the structure appears quite satisfactory, the left-hand edge is very defective because after the picks of filling leave the bottom cloth they pass upward to be continued for the picks of the first cloth, and in doing so introduce the long loops which would constitute an objectionable feature in the texture.

If the picks of the design in Fig. 50 be arranged in the

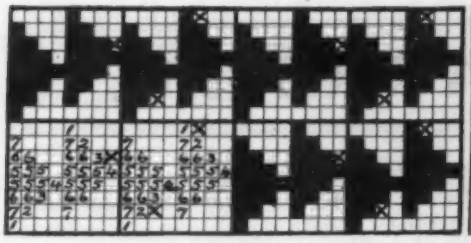


FIG. 54.

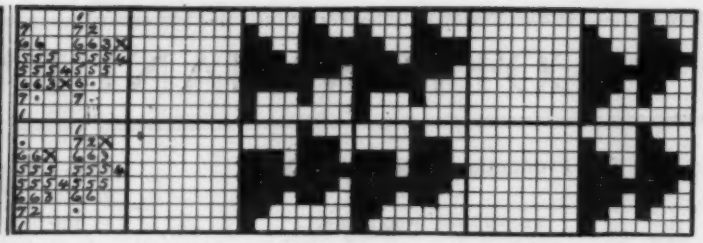


FIG. 55. FIG. 56 FIG. 57.

following order: 1, 2, 3, 4, 8, 7, 6, 5, they would appear on the design paper as exemplified in Fig. 51 which again shows four units of the design. The intersection of all the 16 threads (two units) and 8 picks is given in Fig. 52. The 16 threads are shown in solid black circles, and the 8 filling picks are numbered 1 to 8 where each starts on its journey from one selvage to the other. This structure

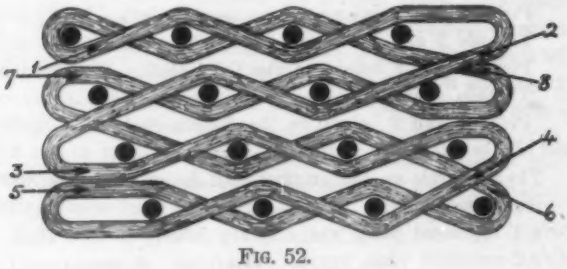


FIG. 52.

shows that the cloth is still a 4-ply one and unstitched, but that both selvages are equal in neatness to the right hand selvage in Fig. 49.

If the design in Fig. 51 were woven into the structure indicated in Fig. 52, it is clear that the resulting 4-ply structure could be opened out to make a single structure four times the width of the illustration. It is not claimed that such a method of weaving a wide cloth in a narrow loom is advisable, but, with certain slight defects and difficulties the operation is possible. The reason for the introduction of this structure is to show that since the selvages are perfect, it forms a better basic structure for a 4-ply compound cloth than does that in Fig. 49.

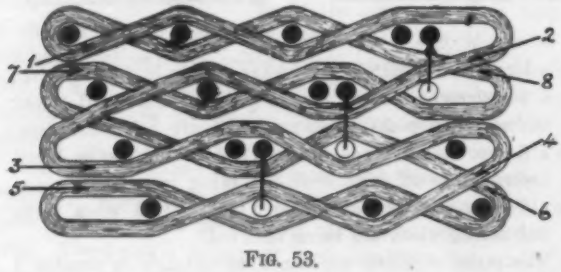


FIG. 53.

It now remains to show how the four distinct plain cloths can be bound together so as to form one compact 4-ply fabric. The principle of stitching by lifting threads from one cloth over picks in another cloth is demonstrated in Fig. 53. This structure differs only from that in Fig. 52 in that three threads (shown in circles) are supposed to have been lifted from their original positions in the 4-ply unstitched fabric to the positions indicated by the solid black circles at the ends of the three vertical arrows, and in each case into the cloth above that to which the thread actually belongs. Thus, the 8th thread in the warp (second thread in the fourth or bottom cloth) has been lifted when the 6th pick was passing through the third cloth. Similarly the 11th thread in the warp has been lifted from the third cloth over a pick of the second cloth (second pick in the weave), and, finally, the 14th thread of the warp has been lifted from the second cloth over a pick of the first or upper cloth, the 8th pick in the weave.

Although this method would bind all the four cloths together, it is defective in two ways:

(a) The binding or stitching points are on three threads only; and

(b) Under certain circumstances the last stitching point on the right of each repeat would show on the surface of the cloth.

When the fabric is self-colored, and the structural effect is unimportant so far as appearance goes, the condition in (b) may be neglected, but the defect in (a) would necessitate an extra warp beam for those threads which take part in the stitching together of the four cloths.

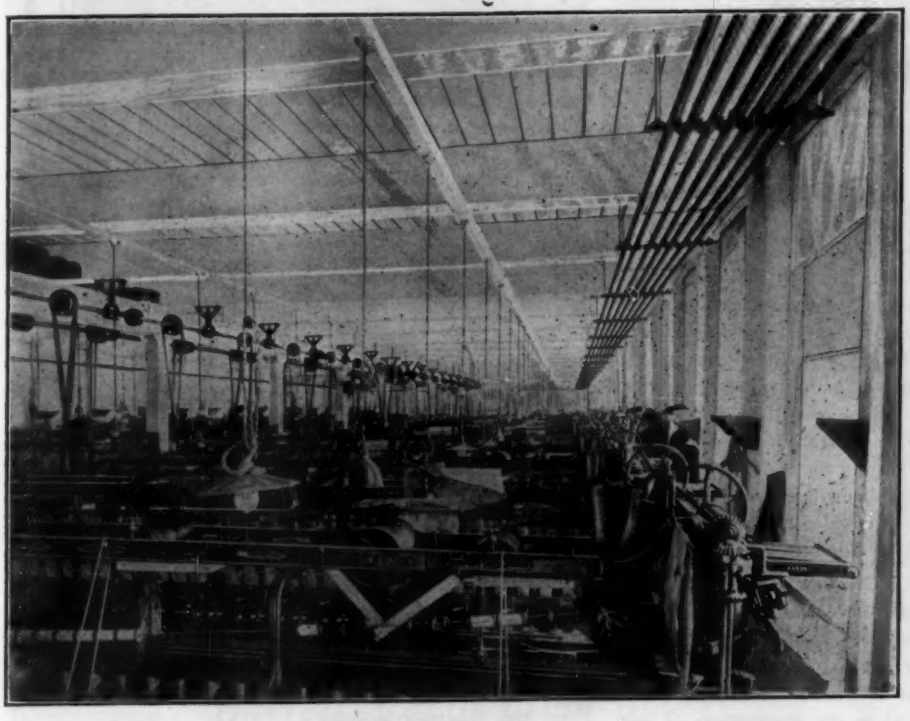
Figure 54 shows four units of the design which would give a structure similar to that in Fig. 53. The numerals have the same significance as those in the designs in Figs. 50 and 51; in addition to these numerals, the three crosses on threads 8, 11 and 14, and the corresponding squares of the remaining three units in solid, show where a thread from one cloth has been lifted over a pick of the cloth above.

Fig. 55 shows a design on 8 threads and 16 picks for a 4-ply fabric in which every thread in the eight takes part in the stitching process, and in which no stitching point will show on the outer surfaces of the fabric. As in the foregoing examples, the numbers 1 to 7 indicate precisely the same function; the crosses represent where a thread from one cloth is lifted over a pick of a cloth in the next higher plane; while the small dots indicate the removal of one of the initial numerals, such dot representing a place where a thread from one cloth has been dropped under a pick of a cloth in the next lower plane, and hence these small dots simply indicate a process and would therefore have to be read as blanks in the working design. Fig. 56 shows four units of the real design, and it will be seen that the squares which correspond to those with the small dots in Fig. 55 have been left blank in Fig. 56.

The stitching arrangement in Figs. 55 and 56 is as follows:

Thread No. 1 dropped under pick No. 7.
Thread No. 2 dropped under pick No. 10.

Paint Your Factory Walls and Ceilings with



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Thomas K. Chaffee Company

Providence, - Rhode Island

Thread No. 3 lifted over pick No. 6.
Thread No. 4 lifted over pick No. 11.
Thread No. 5 dropped under pick No. 2.
Thread No. 6 dropped under pick No. 11.
Thread No. 7 lifted over pick No. 7.
Thread No. 8 lifted over pick No. 14.

There are thus four stitching points on picks 1 to 8, and four stitching points points on picks 9 to 16; and since every thread does the same amount of stitching, once in 16 picks, one warp beam only will be required.

The original weave for Fig. 52 is introduced alongside at Fig. 57 for comparison with the weave in Fig. 56 in which the stitching points have been introduced.

Friction.

Friction! Many a large firm wears itself out by internal friction, says the Efficiency Magazine. It is strong enough to battle with its competitors. It knows how to do its business. It has skill. It has experience. It has capital. It has practically everything—*except oil.*

The first thing in the morning the head of department A makes an irritable remark to the head of department B. The latter replies in the same spirit. Along comes the head of department C and he throws another gibe into the conversation. Other department heads do the same. Anyone might naturally think that they were paid for the express purpose of making each other miserable. Each one carries a pocketful of sand, and drops a pinch here and there several times every hour. The result is *friction.* Nothing runs smoothly. There is no swing. There is no team play. Everybody is trying to put the blame on everybody else; and the only time anyone is happy is when he can prove that one of the others made a bad mistake.

It is almost incredible that a firm of civilized men working under the same roof, and having a hundred things in common, would deliberately turn their daily work into a purgatory of ill will. There is no good reason for such silly conduct. It is a 100 per cent folly and waste.

If you should happen to belong to a firm or department which has the sand-dropping habit, suppose you begin by doing your best to replace the sand with oil. Fetch in a little oil can of your own. You might try "Cheerfulness Brand" to begin with. The "Appreciation Brand" is another good one which you can try later.

Good feeling is as necessary to a firm as lubrication is to machinery. Good feeling means more work and better work. Best of all, good feeling means that work becomes a pleasant and enjoyable thing.

Irritation and bickering is positively destructive. It is worse than rust. Eventually a constant spirit of irritation will destroy any firm, however large and prosperous. Just as constant dropping water wears away a stone, so a constant irritation will wear away the success of any business.

I have frequently known men, of rather small ability, who succeed wonderfully well in business because they knew the value of geniality and good will. They created enthusiasm. They inspired loyalty. How? By always trying the power of oil.

Most of us drop too much sand and too little oil. Most of us would be better and happier if we could learn to lubricate a little more and irritate a little less.

When in doubt try oil.

Dyeing, Bleaching and Finishing.

Slashing Cotton Warps.*

BY PROF. EVERETT H. HINCKLEY.

There is no process in the manufacturing of cotton cloth in which the actual cost of the process bears so remote a relation to its ultimate value as in the slashing of warps. The organization of the mill may be such that the cotton passes through the usual stages of preparation as picking, carding, combing and spinning without undue waste, producing a uniform product. Yet, as a result of poor slashing, the weaving department will be operated only with great difficulty. As a result of these conditions, production drops, seconds increase, and the operatives grow dissatisfied. Although the overseer of weaving and his assistants do their best they cannot overcome these adverse conditions. Adjustment of tension, temperature and moisture will help to remedy the situation but by no means cure it.

Important as slashing is, it is frequently regarded by the management as of minor importance and frequently does not receive the attention it should. There are several reasons for this situation. The process involves the use of hot sticky liquids, hence is not always neat. This produces conditions which do not appeal to the imagination of one with a mechanical or systematic turn of mind. Casual observation by the superintendent can not tell whether the "size" mixture is proper. The word of the slasher tender must be accepted with almost no chance to check his word. The process of slashing compared with that of spinning or weaving is very rapid. The amount of damage caused by any errors in judgment of operator thus extends through considerable of his product before correction can be made. In fact these faults sometimes are not found until the goods are dyed and finished. As the warps are not all put in the looms at once the extent of damage is often not realized for several weeks. By this time it is too late to correct it. Thus the results obtained in slashing contain elements largely due to the personality of the overseer and his slasher tenders, and the payment of dividends is directly affected by a small group of men controlling a single operation.

Control of the several factors in slashing would prevent this undesirable condition. These factors are:—

(a) the nature of starch used;
(b) the nature of sizing compound used;
(c) the cooking of the "size" mixture;
(d) the method of applying the "size;"
(e) condition of drying;
(f) mechanical condition of slasher.

To obtain the best results in slashing we must use the most suitable starch and "sizing" compound, see that the time and temperature of cooking are right, have proper pressure on the squeeze rolls and the size in the "sow" box at the right heat, have the drying cylinders properly heated, and be sure the adjustment of the driving gears is right. The determination of what is best in each case usually rests with the overseer of slashing and his slasher tenders. These men often obtain results that reflect good judgment and keen observation. For a particular mill each one of the above factors may be made standard if full advantage is taken of modern devices. It is our purpose to direct how this may be done.

FIG. 1.

Of the starches available good practice dictates that corn is suitable for coarse yarns and potato for fine yarns. In place of potato, thin boiling corn starches or tapioca starch may be used. Commercial starches are offered on the market in a high state of purity. The amount of moisture they contain is very important and varies greatly with weather conditions. It will vary so much that mixtures made carefully by weight do not give uniform results. On one day 100 pounds of starch may contain 12 pounds of water, and starch taken from the same barrel the next day may carry 20 pounds of water in each 100 pounds taken. A simple and practical way of meeting this difficulty is to measure the starch by volume instead of by weight, thus the selection of the starch is not difficult.

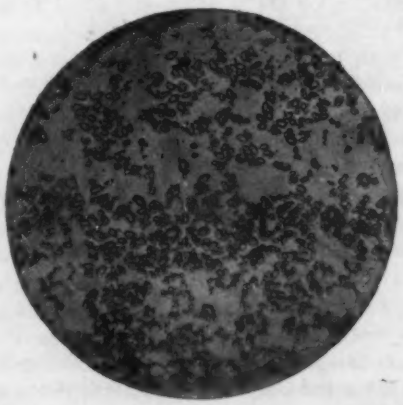
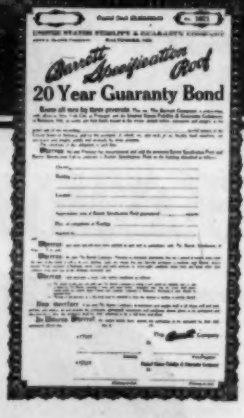


FIG. 2.

The "sizing" compounds on the market offer a wide

*This article is the result of original investigations conducted by the author, who is head of the Department of Chemistry and Dyeing, New Bedford Textile School.



This is the bond that guarantees your roof for 20 years

More than Half a Million square feet of *Barrett Specification Roofs* protect the great Remington Arms Plant

THE type of roof to be used on a huge job like this cannot be decided on the basis of individual preference. Nor can experimenting be tolerated. For the investment is too large and the consequences of a mistake are too serious. When architects and engineers face a roofing job like this they have to get right down to *proved facts and figures.* They have to be absolutely *sure* on four points.

First. That from start to finish they will get just the kind of a roof they specify, with no chance for "skimping" or substituting inferior materials.

Second. That the manufacturer of the roofing materials is thoroughly reliable, and has had long and successful experience in the roofing business.

Third. That the roof will positively be trouble-proof and free from maintenance expense for a long period of years.

Fourth. That it shall be the most economical roof possible to obtain, not as to first cost, but, what is of greater importance, as to *cost per year of service.*

Because Barrett Specification Roofs meet *all* of these requirements better than any other type of roof, they were selected to cover these great buildings.

Today the *standard* covering for permanent buildings is a Barrett Specification Roof. It takes the base rate of insurance. It costs less per year of service than any other type of permanent roof. It is guaranteed for 20 years.

The 20-Year Guaranty

A 20-YEAR Surety Bond is now offered on all Barrett Specifications Roofs of fifty squares and over in all cities of 25,000 popuation and more, *and in smaller places where our Inspection Service is available.*

This Surety Bond exempts the owner from all expense for repairs or up-keep on his roof for 20 years. It is issued by the U. S. Fidelity and Guaranty Co. of Baltimore, one of the largest Surety Companies in America.

Our only requirements are that The Barrett Specification dated May 1, 1916, shall be strictly followed and that the roofing contractor shall be approved by us and his work subject to our inspection.

Thus, in spite of the fact that we do not build roofs ourselves, we are put in a position where we can actually *guarantee* the delivery of the long years of service which Barrett roofs are capable of giving.

Barrett Floor and Foundation Water-proofing

Barrett Materials were used not only on the roofs of the buildings of this great plant, but also to waterproof the floors and foundations, 264,600 square feet of Tar-Rok Flooring; 966,000 square feet of two-ply floor-water-proofing; 126,400 square feet of foundation water-proofing.

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field for selection. While there is a great number of these compounds, their ingredients can be classed under four heads:

(a) fats, as tallow or cotton seed oil;
(b) soaps, made from animal or vegetable fats;
(c) chemicals, as magnesium chloride, acetic acid or caustic soda;
(d) gums, as dextrine, tragasol, or algin.

The fats and oils assist in penetration, soften and lubricate the yarn. The soaps also lubricate somewhat. They also give stiffness to the yarn. The chemicals act upon the starch in various ways. Acids cause the starch paste to cook thin; caustic soda changes it to a thick gummy material, and salts like magnesium chloride attract moisture to the yarn thus making it more pliable. The gums usually give a smooth uniform tough coating to the yarn which resists better the chafing action of the harness and reed. The "sizing" compound as sold frequently contains two or more of the above materials. Water and starch may also properly be present to make the "sizing" compound easier to handle in the slasher room.

The proper cooking of the "size" mixture in the kettle always presents problems difficult to handle. Starch is insoluble in cold water and is unacted upon by it. Fig. 1 shows corn starch in cold water, as it appears under the microscope. As the water grows warmer the starch granules swell. Fig 2 is a micro-photograph of corn starch after it has been heated at 130 degrees F. for 30 minutes.

FIG. 3.

By comparing the size of these granules with those of Fig. 1, a good idea of this swelling action will be obtained. Further heating in water at higher temperatures causes the starch granules to burst and form a semi-transparent paste. The starch in Fig. 3 has been heated at 160 degrees F. for thirty minutes. Nearly all of the granules are broken up. A few that have been mechanically enclosed in paste still exist in lumps. By heating the starch at a boil all the lumps are broken up and a uniform paste results. Fig. 4 shows a starch in this condition. The vine-like effect is characteristic of a well pasted starch. Continued action of hot water on the starch slowly changes it to sugars that are soluble in water. If acids or salts are present the action is hastened. These sugars have little value as protecting or stiffening agents for the yarn. If boiled with an open steam pipe the mixture is diluted with condensed steam. Hense the cooking of the size is an operation that calls for good judgment and careful control.

Sufficient pressure should be exerted by the squeeze rolls to flatten the yarn out, squeezing out the air and to bruise the waxy coating, so that when released from pressure the yarn will suck up the "sizing" mixture. The "sizing" mixture in the "sow" box should be kept hot enough to prevent it skimming over, but not so hot as to cause excessive thinning by chemical changes or dilution with condensed steam. If the temperature of the size is not uniform, the drying of the yarn will not be uniform. This will also give hard and soft warps.

The temperature of the drying cylinders is usually kept constant by pressure regulators. Little difficulty arises at this point. As the cylinders are usually housed there are large losses of heat due to radiation. Hence much more steam is used than required.

FIG. 4.

The drives, gears, and other mechanical connections on the slasher should have frequent attention by a good mechanic. This will prevent undue breakage at the leash rods, prevent over straining of the yarn, and cause the proper "building" of the warp.

No device will ever do away with the need of careful men to operate the slasher. However, the operator may be assisted to a great extent by the purchase of proper mechanical devices to govern the valuable points to which attention has been called. Of these devices, there is probably none that present opportunities for greater improvements of the slashing process than those that control the temperatures of cookers, and applying the size.

Some interesting and important figures showing the trend of American cotton manufacturers toward automatic machinery is found in the January, 1919, number of *Cotton Chats*, published by the Draper Corporation, Hopedale, Mass. These figures show that including orders completed up to January 1st, 1919, the number of Northrup automatic looms installed in the United States and Canada amounted to 336,807. This is one important reason why American manufacturers produce more per operative than any of their competitors, speaking from a national standpoint.

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PAWTUCKET, R. I.

Grasselli Acquires Bayer Company.

Announcement has just been made by the Grasselli Chemical Co., New York, of its purchase of the dyestuff business of the Bayer Co., including the dyestuff factory at Rensselaer, N. Y., sales organization, branch offices and warehouses, stocks of finished and unfinished products, and the American patent rights of the Bayer Co., and the Syndicate Patents Co. The Grasselli company has also purchased the property of the Williams & Crowell Co., Providence, R. I. The business purchased by the Grasselli company will be known as the Dyestuff Department of the Grasselli Chemical Co., with head office at 117 Hudson street, New York. Branch offices will be opened in Boston, Philadelphia, Chicago, Providence, R. I., Birmingham, Ala., Toronto, Ont., and Montreal, Que.

J. H. Mayes, southern representative for a number of textile machinery concerns, has accepted the southern agency for the Stafford Co., of Readville, Mass., manufacturers of the well known "Ideal" automatic looms. The southern business of the Stafford Co., has been handled for the past several years by D. C. Dunn and David L. Mackey, and they will continue to have charge of the sales under Mr. Mayes as southern agent.

The Groveton Paper Company, Inc., 33 West 42nd Street, New York City have taken over the Odell Manufacturing Company and will handle the sales as well as the manufacturing end of their business.

Niagara Blue B R.

The National Aniline & Chemical Company, Inc., announce a new product of their factories in Niagara Blue B R. It is identical with Diamine Blue B X and Benzo Blue B X, which were formerly imported. These prototypes were some of the most widely used brands of direct blue, and were put to many special uses. Niagara Blue B R serves both for navy blue shades, and in combination with Erie Black for the production of dark blues and blue blacks. It is a reddish shade of blue, especially adapted for bright shades as well as for direct indigo shades in combination with black. It is suitable for all classes of cloth work, its penetrating qualities on heavy cotton goods, such as drill and light ducks, being notably good.

The new dye is similar to Niagara 2 B and Niagara 3 B, as to chemical characteristics. It dyes according to the usual methods for direct colors, but better without soda. It is easily soluble, fairly fast to light and washing, and fast to acetic acid. It exhausts fairly well. Its penetrating qualities have already been mentioned, which make it specially good for heavy cotton goods and drills. The coloring for wool is somewhat redder than that for cotton.

To gin 35,000 bales of cotton grown in the Salt River Valley of Arizona, last year, required 200 gin stands. Ninety of these stands, operated by the Goodyear Tire & Rubber Company in connection with its cotton plantations near Phoenix, took care of a large part of this crop. All of the Goodyear gins are electrically operated and equipped with the latest improved type of machines.

Notes About Men You Know.

HENRY W. SALMON, assistant treasurer of the Whittier Mills Company of Chattahoochee, Georgia, has recently been East on a business trip.

AL. G. SMITH, the well known representative of the Corn Products Refining Company is once more back on the job, after several months in the United States Navy.

GEORGE K. TATE has resigned his position as manager of the Mecklenburg Manufacturing Company, Charlotte, N. C., to accept a position as superintendent of the McAden Cotton Mills, at McAdensivlle, N. C.

G. R. HOOPER, of Kanapolis, N. C., has accepted a position as superintendent at the Jewell Cotton Mills, Thomasville, N. C.

J. H. SPENCER, the well known southern manager of the Barber-Colman Company, at Greenville, S. C., has been elected President of the Greenville Textile Club, the recent social organization founded in that city.

HARRY RICHARDSON, superintendent of the Dodgeville Mill, of B. B. & R. Knight, Inc., has been appointed superintendent of the Arctic (R. I.) Mills of the same Company.

H. H. HOLCOMB has resigned as superintendent of the Fulton Cotton Mills, Athens, Ala., and accepted a position at the Buck Creek Mills, Siluria, Ala.

E. M. HENLEY, assistant manager of the Erwin Cotton Mills, No. 3, Duke, N. C., has accepted position as superintendent of the Pearl Cotton Mills, East Durham, N. C.

IRVING SOUTHWORTH, manager of the Pacific Mills, Columbia, S. C., has been elected a trustee of the Columbia Hospital.

J. S. BACHMAN, superintendent of the Anchor Duck Mills, Rome, Ga., has been on a pleasure trip to Tampa, Fla.

A. R. NELSON has resigned his position as manager at the Collar City Finishing Company, Troy, N. Y.

O. R. S. POOL, district sales manager for the transmission Ball Bearing Co., Inc., 1050 Military Road, Buffalo, N. Y., has recently opened a new stock carrying branch for this company with headquarters at the Palmetto Building, Greenville, S. C.

C. L. DIERS, formerly manager of the Indianapolis district of the Goodyear Tire & Rubber Co., has been made manager of the European division of the export department. This division covers all Goodyear activities in Europe, Asiatic Russia and the northern coast of Africa.

C. H. WILLIAMS, formerly manager of the Chicago branch of the Goodyear Tire & Rubber Co., has been appointed manager of the Far Eastern division, which covers the Philippines, China, Japan, Java, Siam, India and Eastern Russia.

A. G. CAMERON, who for several years has been branch manager at St. Louis for the Goodyear Tire & Rubber Co., becomes manager of the Australian division, with territory embracing Australia, New Zealand and South Africa.

WILLIAM K. SWIFT, of Philadelphia, has become associated with the sales department of the Bound Brook Oilless Bearing Company, Bound Brook, N. J.

LIEUTENANT A. KLIPSTEIN, JR., Infantry, U. S. A., has again taken up his former connections with A. Klipstein & Co., 644 Greenwich St., New York City, having just received his discharge from the army after a service of eighteen months. Lieutenant A. Klipstein, Jr., was lately attached to the General Staff.

W. O. TALLENT, superintendent of the Adams Cotton Mills, Macon, Ga., has been confined to his home with a severe attack of influenza.

S. A. SUMMEY, of Henrietta, N. C., has accepted the position of superintendent of the Alexander Manufacturing Company, Forest City, N. C.

C. L. GILBERT has resigned as superintendent of the Seneca plant of the Victor-Monaghan Mills, Seneca, S. C.

L. F. MERRILL has resigned his position at the Erlanger Mills, Lexington, N. C., and returned to his former place as superintendent of the Gastonia (N. C.) Cotton Manufacturing Company.

R. F. CAREY, supervisor of education of the Westinghouse Electric & Mfg. Co., visited the Georgia School of Technology on February 21st for the purpose of meeting the senior and junior classes in mechanical arts in order to lay before them the advantages of the Westinghouse Technical Apprenticeship Course. The technical course is arranged to round out the student's engineering training by practical experience and to assist him in finding his field of greatest aptitude. Mr. Carey displayed photographs of the two plants and explained the great demand for graduates of the Westinghouse Technical Course, many of whom are occupying responsible positions in the various departments of the Westinghouse and in many other engineering enterprises.

J. D. HEAD, has been promoted from overseer of carding and spinning to night superintendent of the Hutcheson Mfg. Co., Banning, Ga.

W. D. MAHAFFEY has resigned as superintendent of the Kincaid Mill No. 1, Griffin, Ga., and accepted a position at Fieldale, Va.

R. E. STARNE, formerly assistant superintendent at Riverside Mill No. 1, Danville, Va., is now superintendent Woodlawn Manufacturing Company, Mount Holly, N. C.

H. W. WHITE of Eufaula, Ala., is now assistant superintendent of Riverside Mill No. 1, Danville, Va.

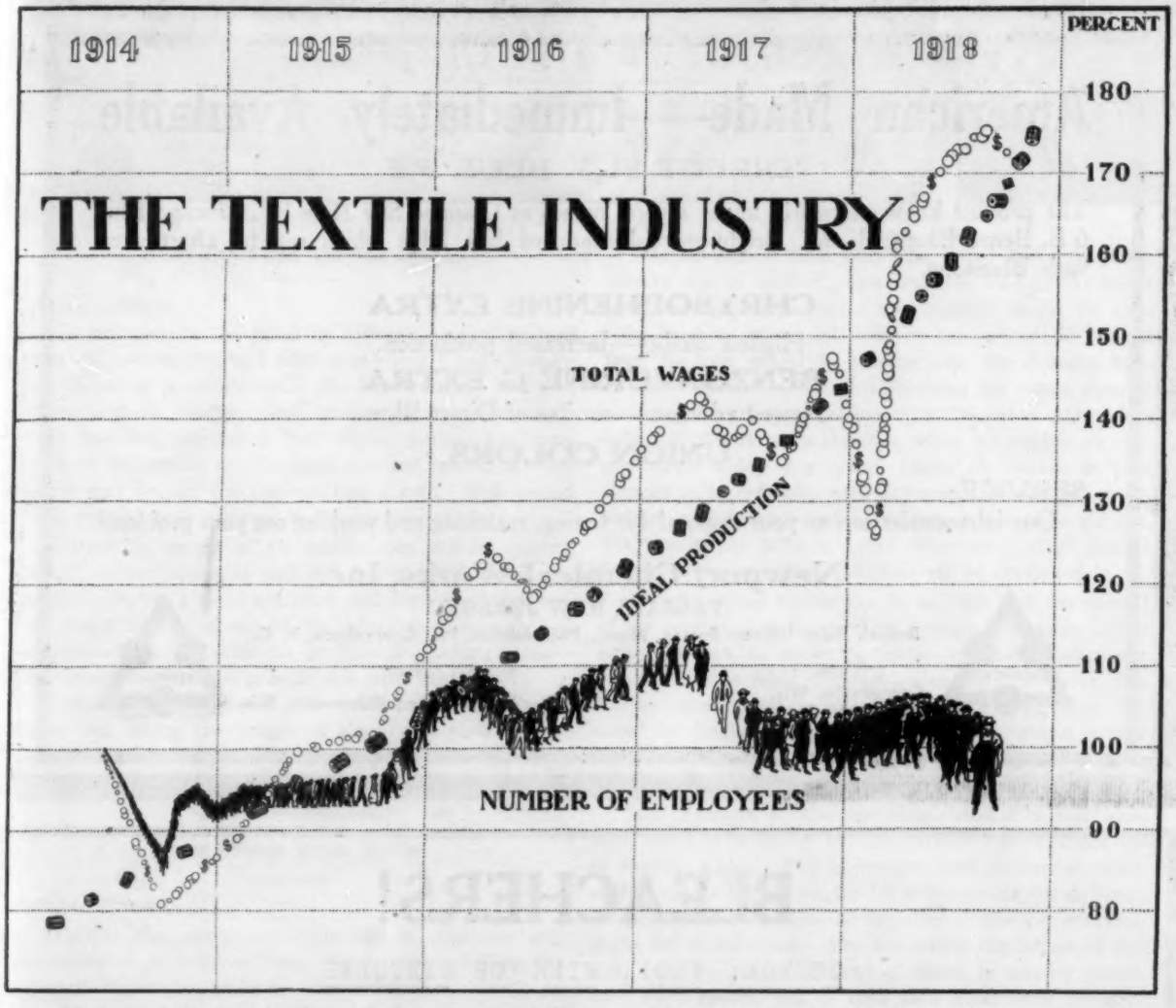
STEVE M. CROLLEY, general second hand in spinning at Olympia Mills, Columbia, S. C., has resigned to become overseer of spinning at the Royal Mills, Charleston, S. C.

I. L. POWER has become manager of the Stevenson Cotton Mills, Stevenson, Ala., but will be located at Shelbyville, Tenn.

F. E. BLAIR has resigned his position at the Richmond Hosiery Mills, Rossville, Ga., to become overseer of carding at the Thatcher Spinning Company, Chattanooga, Tenn.

L. A. HENLEY, of Burlington, N. C., has accepted the position of superintendent of the Double Shoals Cotton Mills, Double Shoals, N. C.

W. L. GOODWIN has become superintendent of the Acworth Hosiery Mill, Acworth, Ga.



Although the number of employees in the Textile Industry today is no greater than it was four years ago the total of wages paid is greater by 70%.

How are you taking care of this 70% wage increase? The easiest way, perhaps, is to increase the price to the consumer. The best way, however, is to increase the productiveness of your employees.

As the total wage curve rises, the production curve should follow it so that each employee can give for the increased wages he receives, greater production without greater expenditure of energy.

A fundamentally sound method of increasing the productiveness of your workers is to use Hyatt Roller Bearing equipped textile machinery. Hyatt Roller Bearings, by reason of their durabilty make textile machinery absolutely dependable and guarantee continuity of operation, free from shutdowns for repairs and lubrication. This makes for maximum production.

In addition to the dependability of Hyatt Roller Bearing equipped textile machinery there are worth-while savings in power, lubrication, and maintenance costs.

Our textile and engineering data will be of interest and value to you. Send for it today.

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DETROIT, MICHIGAN

HYATT ROLLER BEARING COMPANY
INDUSTRIAL BEARINGS DIVISION
METROPOLITAN TOWER, NEW YORK

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Manufacturers of Bearings for Mine Cars, Ore Cars, Steel Mill Cars, Roller Tables, Trolleys, Cranes, Hoists, Machine Tools, Line Shafts, Countershafts, Concrete Machinery, Textile Machinery, Conveyors, Lift Trucks, Industrial Trucks, Railway Service Cars, Storage Battery Locomotives, etc.

1913

HYATT BEARINGS FOR TEXTILE MACHINERY

American Made—Immediately Available

DIRECT SKY BLUE F F

The product known formerly under several names as Diamine Sky Blue FF, Chicago Blue 6 B, Benzo Blue 6 B, etc., Bright greenish shade of Sky Blue which can be aftertreated with Bluestone.

CHRYSOPHENINE EXTRA

Highest quality—Increased production.

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Newest addition to our line of Direct Blues.

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COTTON, WOOL, SILK OR MIXTURES

Have you thoroughly considered that the competitors of your mill can now furnish goods of fast white, soft, elastic, odorless, not weakened?

Of course you know by this time that the only way you can produce these qualities is by means of Peroxide bleaching, and that you can get all needed practical help from us.

The Roessler & Hasslacher Chemical Co.

New York, N. Y.

How Other Men Manage

Practical Discussions by Cotton's Readers on all varieties of Mill Subjects

Hard Ends and Uneven Staple.

EDITOR COTTON:

In reference to the letter by "Wash" concerning hard ends and uneven staple, I wish to say that I had the same trouble about a month ago. We were running one inch staple and the carder mixed in some cotton that was a good one and one-eighth inch staple, putting the same twist in the roving for the good one and one-eighth inch staple that he did for the one inch staple. This caused hard ends to come through in the spinning room.

I took the weight off the middle rolls without results, then I opened the rolls and still left the weight off the middle rolls, but I could not draw that roving. I then had the carder take twist out of the roving until enough had been taken out to enable me to draw it properly. Since that time I have had no more trouble with hard ends.

I am sending this letter in to your department as evidence that taking the weight off the middle rolls as suggested as a remedy by "Wash" will not always prove to be satisfactory. A. B. C. (New Jersey.)

Some Picker Room Notes.

EDITOR COTTON:

Whether the cotton comes through a condenser and gauge box or is delivered direct to the breaker from the automatic feeder, it should be delivered to the feed rolls in an even sheet of the same thickness all the way across the machine, and to make a good firm lap the machines have to be kept free of chokes, and all air leaks stopped, like the leather around the end of the screens, and the door under the inclined cleaning bars.

The speed of the fans, the setting of the dampers in the air flue at the end of the screen and the settings and speed of the beater have to be governed by the results desired as well as by the conditions at the different mills. Consequently there is no set rule to go by, but certain settings and speeds will give certain results regardless of conditions, while other certain settings and speeds will give certain results in the majority of cases. The object of this article is to show the result of different settings and speeds in the majority of cases, and to recommend settings and speeds that the writer has found to give the best results.

The fans, in all cases, should be run at a speed that will give draft enough to keep all the white cotton passing through the beater bed and not allow any of it to fall out through the grid bars (or mote knives), and there should be enough draft to keep the dust pipes free of chokes. If the dust pipe is so short that it is not a consideration, there should be draft enough to draw the cotton up hard against the screens so as to get as much leaf trash and dirt through the screen as possible.

The air current from a high fan speed draws the cotton quickly, and in smaller pieces from the blow of the beater blade, causing more motes and foreign matter to come loose from the fibres and either be knocked out or fall out from its own weight in passing over the cleaning bars. In other words, the beater is churning the cotton through a strong air current, which separates the cotton into smaller tufts and allows more cleaning, while the weaker air current from a low fan speed, allows the cotton to pass through in larger tufts, with motes and foreign matter imbedded in the center that never have a chance to get out. The smaller the tufts or pieces of cotton that go against the screen the more leaf and trash will be drawn out.

The fan speed should not be so high that the current of air coming into the machine through the beater bed is strong enough to draw the motes knocked through the top mote knife back into the beater bed. However, this can be overcome where necessary to have a very high fan speed by drilling holes in the ends of the beater bonnet and fastening strips of galvanized iron 5 inches wide to every third or fourth mote knife.

The chambers at the top screen should be left wide open when possible, as the majority of cotton should go to the top screen. This is because there is more cleaning surface on the top screen, the lap is firmer and not so likely to split when made with the majority of the cotton drawn to the top of the screen. The dampers at the bottom of the screen can be run from one-half closed to entirely closed with good results, but if laps have a tendency to split close the bottom damper entirely, and turn the top damper upside down which shuts the draft off entirely from the bottom screen and makes it that much stronger at the top screen. This will take out about, if not quite, as much foreign matter as both screens did with the draft divided.

If the lap is barrel-shaped it is caused either from the dust pipe being choked, a wrong setting of the dampers causing an air pocket on both sides, or an air leak through the door under the individual cleaning bars. If the lap is too soft all the way across it is caused either from the leather brake on the friction wheel being oily, or worn (or both); too much draft on the botton screen and too little on top screen; or because door under the individual bars is not closed. If the lap is too soft on one end it is caused either from the dampers on one side being set different from the dampers on the other side; a choke on the side that was soft, or a leak through one side of the door under the inclined bars. If the lap has thick and thin places longways of the lap, it is caused either from chokes or by air pockets caused by closing the dampers (especially the top one) too close, causing the air to draw more cotton to that part of the screen where the air is going through the strongest and very little cotton coming to the screen where the air pocket is.

Is the Bogey Man Gonna Get *YOU* This Summer?

Old Man Weather is a Bogey Man who enters every mill, every day, everywhere. What does his coming mean to *your* mill?

Is *your* mill

CLEAN? No dust, no dirt, no fly?

HUMIDIFIED? Every day, in every department, always the same; winter and summer?

FREE FROM DRAFTS from open windows? Always?

COMFORTABLE for your employees? Warm in winter, *cool in summer?*

You know what the first three items mean. *Think of that fourth item!* Labor is unsettled, frequent turnover is expensive and disastrous to uniformity of process and of product. In the Carrier-equipped mills last summer, labor difficulties became assets. Labor *sought* the Carrier-equipped mills.

Did it ever occur to you how *helpless* Old Man Weather finds the *unprepared* mill? He stalks in and has his own way, doesn't he? Well, there's a way to keep Old Man Weather out of your mill! Carrier equipment locks every entrance to your mill, even the tiniest invisible cracks, so that Old Man Weather cannot enter.

Carrier equipment manufactures your own weather, inside your own plant, and takes orders from your own engineer.

Suppose You Had a Private Weather Bureau in *Your* Mill?

Our booklet 103-C will tell you all about it. It's yours for the asking.

Carrier AIR CONDITIONING AND DRYING EQUIPMENT

Carrier Engineering Corporation

39 Cortlandt St., New York — Chicago, Transportation Bldg. — Boston, 176 Federal St. — Buffalo, Prudential Bldg. — Philadelphia, Land Title Bldg.

Carrier AIR CONDITIONING AND DRYING EQUIPMENT

The harder the blow of the beater blade on the cotton the more motes it will knock through the mote knives, at the same time the harder the blow the more injury to the fibres, but the blow must have enough force to knock the motes through the draft under, and coming into the beater bed, created by the fan. The thinner the sheet of cotton being fed, and the greater the number of blows struck the cotton by the beater blade, the cleaner the cotton will be; but excess speed will cause the beater to break and wreck the machine. The thicker the sheet of cotton and the faster the beater speed, the wider the setting at the feed rolls should be, but the closer the beater is set to the feed rolls the cleaner of good cotton the motes removed will be. However, if set too close the fibres will be injured, that is if the setting of the beater blade to the feed rolls is close enough, or if the cotton fibres are long enough, for the beater blade to strike the fibres still held by the feed rolls, those fibres will be injured regardless of the speed of the beater.

A two-blade beater on medium weight work will give very good cleaning results at 1,400 revolutions per minute and not injure the fibres when set ¼ inch from the feed rolls in the breaker, ⅜ inch in the intermediate and ⅛ inch in the finisher picker, while a three-blade beater will give about the same results at 1,000 revolutions per minute with these settings.

The carding beater can be set from ⅛ inch to as close as 1/32 inch and do good work if the speed is not too high, but 900 revolutions per minute is the limit for this beater and at 900 revolutions per minute the fan speed wants to be as high as it is possible to run it without bad results. The carding beater will make a better lap for the card at 800 revolutions per minute; for at high speed, the surface speed of each of the spikes is so great the draft from the fan does not remove the fibres caught by the spike until the spike is full out to the point, when the bunches of fibres will pull off in the shape of a curl or loop and make a bad lap for the card.

The theory in regard to the mote knives under the beater is that the top knife should be set closer to the track of the beater blade than the bottom knife, because the cotton expands as it follows the beater and needs more room to keep from dragging over the knives and some of it falling out. Better results can be obtained by setting the top mote knife from ½ inch to ¾ inch farther from the beater than the bottom knife or bar, for the more the tufts of cotton roll over and drag against the bars without going through them the cleaner the cotton will be. The eveners should be taken entirely apart and cleaned at least every six months. With four laps on the apron, the evener belt should run about one inch to the right of the center of the evener when facing the evener. This gives the evener a better chance when one of the laps runs out, and there are only three laps on the apron, and as there is never five laps on the apron all of the reducing or lightening side of the evener is not needed if the intermediate laps are properly made. On a Kitson picker the fulcrum of the lever over the scale box should be about the center of the adjustment bar or about seven inches from center to center of the fulcrum lug and the pin that forms a bearing for the lever. If the fulcrum is closer to the pin it is too sensitive and if farther away it is too slow.

Every machine in a picker room should be taken completely apart and cleaned and oiled every three months, and at all times the machines should be kept cleaned and well oiled, too much oil is better than not enough.

A. L. A. (Ga.)

Fixing Wage Standards.

EDITOR COTTON:

To my mind the only and best way to solve the problem of wage standardization is to vision the principles involved by (1) conditions, (2) place, and (3) age. Years ago I thought a standard for the regulation of wages possible, but I have changed my mind.

All this question about the time study man may look fine in print, but in actual practice it is not always a success, and for the simple reason that such men are not faultless, many are narrow minded, and often exaggerate their reports to please the office they represent.

Let us now consider the three principles individually. You will find in one mill ten cards, in another eighteen, and so on up to one hundred and over. In one mill you will find where thirty cards do more work than sixty cards in another. In another mill you will find the waste house or picker room so situated as to cause a lot of unnecessary floor walking. In another mill the cards are stripped oftener and the waste removed oftener. The different systems of cleaning should be considered here.

Again machinery affects the condition of the working-classes in many ways. I have in mind the vacuum system of card stripping which not only lessens labor but is sanitary and healthful as well.

Under any given social conditions there must be differences of wages in our cotton mills, which may be regarded as permanent until some change occurs in the conditions. In other words, certain differences of wages are stable or normal, whilst others depend simply on temporary fluctuations in demand and supply.

In taking charge of a card room some years ago, I wrote for a stripper in a nearby town who formerly worked for me. When put to work and told that he was to care for thirty cards, he refused to start work. His argument was that he cared for only twenty cards previously, and no matter how much less the work was, the thirty cards was all he had in mind. There was a case where twenty cards turned off more work than the thirty cards, which of course meant less work for the same wage, but, as stated, no argument could induce him to start work.

What has been said about the card can be applied to almost every machine in a cotton mill. It may be that an employer has a right to standardize the day's work, but can he enforce this right? Why? Different conditions. A recent writer states, "And in other cases, where trouble is apparently due to the workmen, if sifted to the bottom the trouble can usually be traced back to the employer through some grievance of long standing."

This correspondent is right. But how are such grievances brought about? The most common grievances are hatched at the manufacturers' conventions. However, it must be said here that it is done unconsciously. At those gatherings it is common to hear remarks like the following: "How much do you pay your stripper; your grinder; how much per cut for weaving; how much does

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THE country's annual fire loss is startling, notwithstanding plants are provided with sprinkler systems and portable extinguishers.

Inside protection is wise. **Outside protection is equally vital.** Incendiary fires are more likely to prove destructive than accidental ones. Firebugs and other marauders are kept at a safe distance by an Anchor Post Link Woven Steel Chain Fence—

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too economical, service considered, to compare with any other fencing in cost
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Anchor Post Fences

such a yarn cost you per pound; etc? Never a word about conditions.

How often will you hear men boast of paying a much lower wage than the other fellow. I know a mill that is paying, or I should say they suppose they are paying, .18 per hank. But from the actual production and right hank number the same figured .205 per hank. In the mill in question I know the treasurer could enforce his rights, but he is fooled. The carder reports his hank roving a little lighter than it really is and besides gives a few hanks and gets by—another condition. The same conditions can sometimes be found in the spool room where so many boxes are given.

Wages should be measured by the money earned in a certain time, and as to the rate of task-wages, the amount of work of a given quality; in many instances this rough mode of measurement is sufficient.

Let us look at it in another way, and consider the loom fixer. His successful work depends entirely on the manner and mental attitude in which he does his work, and not by the number of times the operation or work has been performed. If a loom fixer does his work in a mechanical way, that is, unthinkingly (which is often the case), it is not a successful job, and in a short time he is called again to the same loom. The quickest way is not always the better way; taking time and using brains always pays best. Again, in this case, wages cannot be standardized by a certain amount of work, as a good loom fixer has a lot of spare time, while the poor loom fixer is working continually. When all the loom fixers are sitting down and all the looms are running, I breathe much better for I know it means larger dividends for our concern.

Next let us consider the time study man. The writer at one time was superintendent of a mill, the only cotton mill in the city in question. All other mills were worsted. A time study man was employed in the twister room, and although I must admit that after a few weeks the eight boys in the twister room could doff much faster, it was only a short time afterwards when they left to work in the worsted mills. They were sore at having the watch drawn on them. I have in mind another case in a certain town where an electrical plant was established. Wages were standardized according to a large plant in New York State, but they soon found that it was impossible to hold men in a lonely town for the same wages paid in the city.

I had the same experience in a few mill towns. Most towns are obliged to pay higher wages, especially in the summer months, when many leave the mill to go wood chopping, or to attend to their farm or garden. These are actual facts and experiences and prove what I have already stated. Such conditions became so troublesome in some places that they adopted the bonus system, but I never yet knew of a successful one.

I know of a cotton mill in a small town that has the following bonus system. In the card room they pay speeder tenders $1.30 per day standing pay, and 5 cents per hank for piece work, and a dollar bonus per week for full time. Any experienced mill man can see at a glance how unjust this system is to the experienced hand. The poor hand, or even the learner, gets $1.30 per day. Now what encouragement is such a system to the efficient hand? Still the system is adopted because the mill is in the wrong place.

Let us next consider the third and last principle. To my mind a man's age should have no bearing on his wage. Gray hairs do not indicate an empty head. We pay men by the year, not for their years. (1) We should pay the worker solely by his work, (2) by the output, and (3) by estimating the production.

We should buy labor just as we purchase equipment. We want the machine, human or mechanical, which delivers with maximum perfection and minimum waste—which operates at the greatest mental and mechanical speed with the fewest errors. We are always looking for the man who piles up the biggest profit, and we should not care a rap whether he was born twenty or sixty years ago. We infuse new blood into our industrial and trade systems not because we lack faith in age, but only when we lose it. The law of survival by fitness is merciless, yet just. I have just promoted a man of seventy years, he is making good, too. Displacement by force of merit is inevitable.

There are many cotton mills that have the pension system, when instead they should say to many of their workers, you were paid in full for past performances. At the outset you demanded as big a salary as your ability could command. As you became more valuable, whenever you could. you seized the advantage at every stage. Throughout your progress you held out for the full value of your increased worth. Therefore, we are under no obligation to you, as we feel the score was evened year by year. If a man's mind is up-to-date we should forget his birth. On the other hand, if a man ceases to absorb new ideas or closes his eyes to improvements—if he is sure he is too old to learn, then he is assuredly too old to earn.

Wm. Shaw. (N. H.)

Erie Fast Red FD.

A new color announced by the National Aniline & Chemical Company is Erie Fast Red FD, a product identically the same chemically, but slightly bluer than the one formerly manufactured at Buffalo known as Niagara Fast Red FD, and imported before the war as Diamine Fast Red F, Benzo Fast Red FC, and Oxamine Fast Red F.

This red is applied in the usual way for direct colors, with the addition of common or glauber salt. The shades obtained with the glauber salt and the appition of 2 to 3 per cent of soda are clearer and brighter than when dyed with common salt. It exhausts evenly and well, forming a fast red tint that stands up well to light. It is fast to alkalies, and fast to acetic acid, but not to mineral acids, and withstands rubbing and hot pressing. This red dyes cotton and wool to about the same shade and strength. This ability to meet many tests, and also for the fact that it may be used for mixed fabrics, should make this dye of value for many uses.

Through error a suitable credit line to the Draper Corporation was omitted in connection with the group picture of six views shown on page 135 of the January number. These views show various points in the park playground belonging to the Draper Corporation at Hopedale, Mass.

The Day of the Super-Lubricant Is Here—

SLO-FLO

A high quality and economical slow-flowing lubricant, especially adapted to the lubrication of high speed textile machinery. Its cohesive, clinging qualities prevent wasteful dripping and spattering and oil-soaked fabrics. It can save you money—as it has other mills, for over 16 years.

IN these times of speed production—when competition demands that every loom and spindle in your mill shall keep right up to the mark—it becomes vital to use lubricants that will safeguard you against ruinous time loss, through shut-downs for repairs.

And, with the overhead constantly piling up, it becomes just as vital to keep those repairs down to the lowest possible minimum.

Lubricants bearing the famous S-F Trade Mark are "Super-Lubricants" made from scientific formulas worked out by our Lubrication Engineers, after long and careful experiment. Their use assures perfect lubrication under the most exacting conditions, thereby protecting you against all those losses of time, labor and equipment to which you are constantly exposed when you use inferior oils and greases.

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Quality Lubricants Since 1853.

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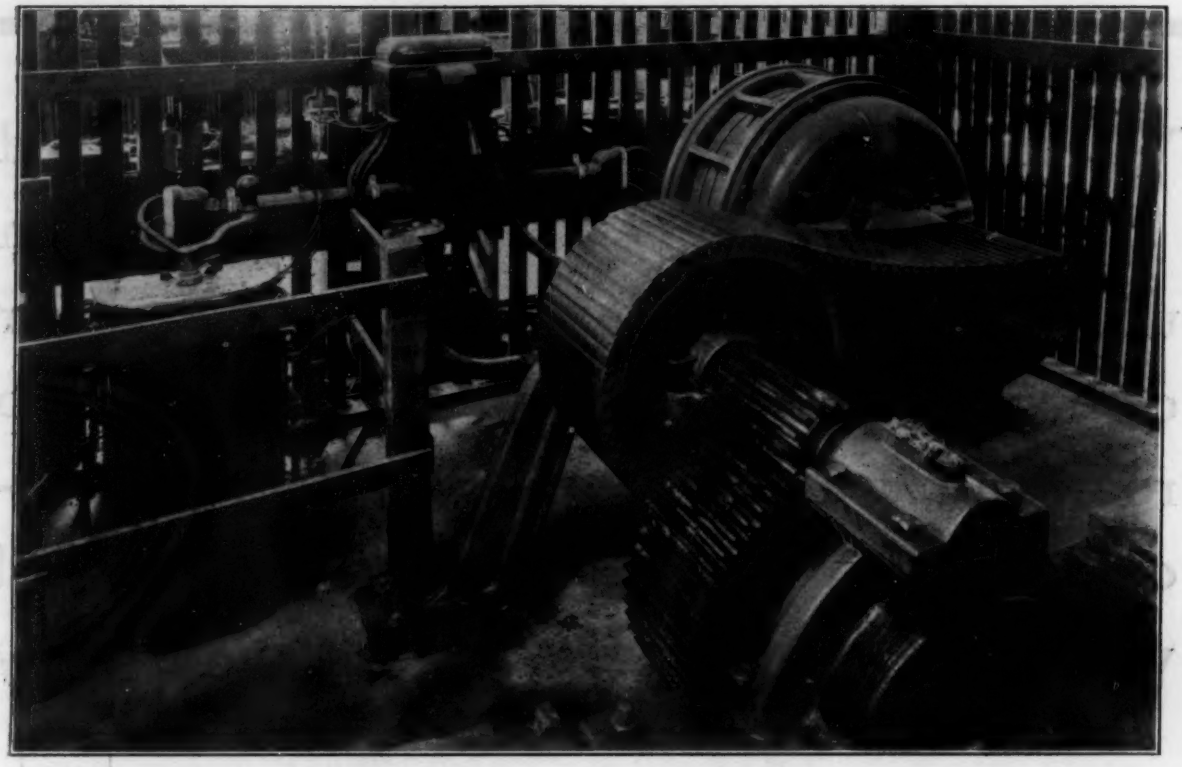


Morse Chains in Southern Plant.

The accompanying illustration shows one of two Morse chain drives installed by the Doss Tire and Tube Company, Atlanta, Ga., for the purpose of driving callendering rolls in their plant. These rolls are used for impregnating the duck in the breaker strips in the outer casings.

The large rolls are driven by a 100 horsepower motor shown in the illustration. The smaller rolls are driven by a 30 horsepower motor. It is interesting to note the compactness of this drive, the small amount of floor space it occupies and the quietness with which it operates.

The World's War Debt.

After the Victory Loan, to be issued in April, the yearly bond interest obligations of the United States will be $1,100,000,000, according to calculations which have been made by the Mechanics & Metals National Bank of New York and which are presented in a book entitled, "The World's War Debt, issued recently. The bond interest to be paid by the United States will be fifty times greater than the nation's interest obligations of two years ago, and will exceed by $100,000,000 the combined interest payments of all the European powers in 1913, the year before the war.

Added to the interest on war bonds, the government's normal running expenses will require direct and indirect tax payments from the American people of more than two billion dollars in the next fiscal year, but large as this amount is, it is below what any of the large European nations will require in taxes. Payments will be required of the people of Great Britain next year amounting to $3,400,000,000, while entirely apart from their indemnity payments at least an equal amount will be required of the German people. The people of France will have to contribute taxes of more than three billion dollars for the nation's support.

"If we make no allowance for indemnities to be received," the Bank states, "France apparently will require upward of 40 per cent of her people's peace-time income, as that income was formerly figured, to meet the interest obligations and upkeep expenses of the nations in 1920. Russia apparently will require more than 45 per cent of her people's income, as that income was figured prior to the war. Before meeting any indemnity obligations, Austria-Hungary will require 48 per cent and Germany 31 per cent."

The book sets forth in tabular form the total income of each country against the taxation for 1920, and continues:

"A way to appreciate the significance of the various figures, is to translate them from money into the time and effort necessary to earn that money. Thus, if 5 per cent of the American individual's income is to be turned over for his government's expenses in 1920, it is clear that an equivalent percentage of his employed time will have to be devoted to producing earnings to meet the necessary taxes. So the income earned by the productive effort of the average American in 15 out of the year's 300 working days will be necessary to support his government. By the same measurement, the income of 84 days of the Englishman's working days will be necessary for government upkeep, while 90 of the German worker's days will thus be required. Because he could not deprive himself in the period of the war to meet the full expense that was incurred, the Frenchman, according to the figures given, will have to turn

WHY spend money to drill holes—and then spend more money to plug them up with rivets? Why condemn a 40-dollar casting for a 40-cent flaw? Why stick to shop routine that calls for 2-dollar methods on 90-cent jobs? Write today for Bulletins that tell what Oxweld Service is doing in your industry

Oxweld Acetylene Company
NEWARK, N. J. CHICAGO LOS ANGELES
World's Largest Maker of Equipment for Oxwelding and Cutting Metals

over his earnings for 2 days every week to meet his government's obligations. The Austrian and the Russian will have to do even more, unless circumstances are improved."

In conclusion the book points out that, "the ability of nations to pay interest on war bonds and gradually wipe them out will depend, in the final analysis, upon economic factors; namely, the profits that are derived from production, industry and trade. For each nation, then, the ability to pay the financial legacy left by the war will depend upon the answers to these questions:

"'Will that nation be impoverished because of the war?'

"'Will it recoup by developing its economic resources of all kinds?'

"'Will it compete actively in the markets of the world?'

"'Will it hold its own in any competition for capital?'

"'Will it retain its labor?'

"If the answers to these questions are satisfactory, each nation for which the answers are made will be able to support its debt, and prosper withal. The welfare of every nation rests upon its capacity for production. In considering the whole matter of national bankruptcy, then, and of ruin, we must recognize the fundamental principle that bankruptcy after all depends on other things besides debt, and that ruin is a relative term. No matter how much a nation may borrow or how high its debt is piled, if its wealth and income increase proportionately it will be solvent. If its wealth and income increase more rapidly than debt, it will be more prosperous than before."

Going After Latin-American Trade.

(*Continued from page* 304.)

$c/1 stands for paper currency and is an abbreviation of Curso Legal.

Bills of exchange on foreign countries are quoted in both paper and gold but usually they are quoted in gold. When Buenos Aires quoted New York Exchange on the basis of paper currency, the quotation represents the equivalent in U. S. currency of $1.00 paper pesos; thus, 42.50 means that $0.4250 U. S. currency is the equivalent of $1.00 paper peso. When Buenos Aires quotes on the basis of the gold peso, the quotation is expressed in gold pesos; thus, "New York sight $1.0375" means that $1.0375 Argentine gold pesos is equal to $1.00 U. S. currency.

"Chrome Colors" is the title of a new shade card that is being sent out by the National Aniline & Chemical Company, Inc., 21 Burling Slip, New York City. In presenting this pattern card to the trade the company offers a range of chrome colors by means of which the dyer can produce practically any shade desired on the class of fabrics to which chrome colors may be suitably applied. Heads of dyeing departments should write for a copy of this shade card unless one has already been received from the company.

One way in which to teach employees to be polite is to set the example.

Notes About Men You Know.

LIEUT. R. O. LINDSAY who graduated from the textile department of the North Carolina State College which is the North Carolina Textile School, has been listed by the War Department as an "Ace," having six planes to his credit, and is the only North Carolinian to win this title. Lieut. Lindsay graduated with the Textile Class of 1916, there being nine graduates in the class. Of these nine graduates, one obtained a commission as captain and five as lieutenants. There were also one sergeant, one in Signal Corps and one in construction service. The Textile Department and the College have now gone back to their regular work.

W. GARY, formerly assistant Supt. of Mill No. 2 of the Fulton Bag & Cotton Mills, Atlanta, and who has been a member of the Aviation Corps, has returned to his old place.

ARTHUR P. SMITH, for the last year superintendent of the Arctic (R. I.) Mills, of B. B. & R. Knight, Inc., has been promoted to superintendent of the Knight mills at Manchaug, Mass. Before going to the Arctic Mills, Mr. Smith was superintendent for the Knight company, at Providence, and also the Langley (S. C.) Mfg Co.

A. H. HAMILTON, of Fayetteville, N. C., has accepted the position of overseer of spinning at the Bladenboro (N. C.) Cotton Mills No. 1.

T. N. REAVES has resigned as carder and spinner at the Hamilton-Carhartt Mills No. 2, Rock Hill, S. C., to become overseer of carding at the Fort Mill Manufacturing Company, No. 1, Fort Mill, S. C.

J. E. WILLIAMS, of Pineville, N. C., is now overseer of carding and spinning at the Bearskin Cotton Mills, Monroe, N. C.

S. J. HUNTER, of Great Falls, S. C., has become overseer of weaving at the Hartsville (S. C.) Cotton Mills.

J. W. SWEET has been promoted to overseer of weaving at the Fort Mill (S. C.) Manufacturing Company.

M. DUCKWORTH, of Webster, Mass., has accepted the position of overseer of weaving at the Avondale Mills, Birmingham, Ala.

J. Y. KEASLER, formerly overseer of weaving at the Conestee Mills, Greenville, S. C., has accepted a similar position at the Union-Buffalo Mills, Union, S. C.

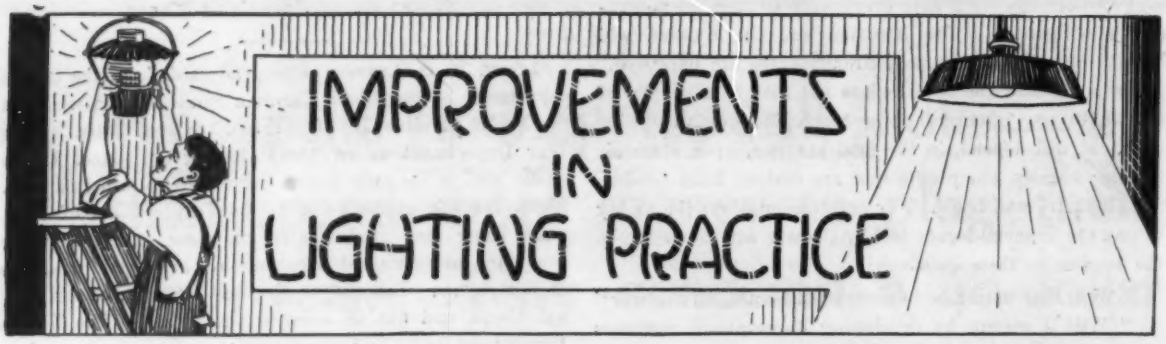
C. B. HARRIS has resigned as night overseer of weaving at the Erlanger Mills, Lexington, N. C., and accepted the position of overseer of weaving at the Edna Mills, Reidsville, N. C.

R. BURRISS has resigned as night spinner at the Norcott Mills, Concord, N. C., to become overseer of carding at the Brown Mill, of the same place.

E. W. WEBB from Cherryville, N. C., has accepted position as overseer of carding and spinning at Ella Mill, Shelby, N. C.

J. J. HYDER has resigned as overseer of weaving at the Avondale Mills, Birmingham, Ala., and accepted a similar position at the Fulton Bag and Cotton Mills, Atlanta, Ga.

JOHN H. CHEATHAM has been elected president and treasurer of the Georgia Cotton Mills, Griffin, Ga., succeeding Clyde L. King, of Atlanta.



The use of efficient and good lighting for industrial work is one of the effective steps toward the conservation of fuel, raw materials and human life, and toward increased production of goods which the nation needs. This is true in some industries to a greater extent than in others. In cotton mills the need for good lighting has been recognized for some time, and many installations which were made several years ago were considered satisfactory according to the best practice at that time. However, these same installations at present may not be considered as the most efficient or the most satisfactory for the reason that improvements in the art of lighting have been brought about through the development of the Mazda C lamp (gas filled) and by its almost universal use for industrial lighting. Since the filament of this newer and more efficient light source is of higher candlepower and of more concentrated form than that of the Mazda B lamp, the design of reflecting equipment has had to undergo some marked modification.

The lighting conditions which exist when natural day

FIG. 1. A MAZDA C LAMP WITH OPAL CAP AND PORCELAIN ENAMELED STEEL DOME-TYPE REFLECTOR.

light is properly utilized constitute the standard which should be approached as nearly as practical with artificial lighting. This is true with light quality as well as quantity. There should be an adequate light intensity on both the horizontal and vertical working surfaces, and in addition there should be sufficient light on the side walls and ceilings to dispell the depressing effects of dingy surroundings. Furthermore, the illumination should be of satisfying quality, devoid of annoying glare and sharp shadows, approaching as near as practical the quality of natural daylight in color and diffusion and softness.

According to past practice, the bowl-shaped enameled-steel reflector with the 40 or 60-watt Mazda B lamp was in common use for cotton mill lighting. While this unit provided good illumination on the horizontal working surfaces, it failed in many cases to light adequately the vertical surfaces or provide any appreciable illumination on the ceiling or side walls.

The modern lighting practice tends towards the use of the dome-type reflector rather than the bowl. The dome-type reflector when used with the Mazda C lamp gives a better efficiency and a wider distribution than the bowl, but its higher angle of cut-off does not permit its satisfactory use with clear Mazda C lamps unless some means of diffusing or concealing the brilliancy of the lamp filament is used. Frosting the bowl of the lamp bulb or surrounding it with an opal cap serves to modify the brightness by increasing the apparent size of the light source. The combination of the Mazda C lamp with a diffusing medium, and

FIG. 2. THE REFLECTO-CAP DIFFUSER.

the dome reflector shown in Fig. 1, provides a very suitable unit for cotton mill lighting. The illumination with such units is soft and diffused, and free from annoying glare.

Where a high degree of light diffusion is required, the reflecto-cap diffuser, shown in Fig. 2, may be used. This unit consists of a large diameter enameled-steel reflector and a clear-bulb Mazda C lamp, over the bulb of which is fitted a polished metal cap which conceals the light source entirely and reflects a large part of the light from lamp to the reflector whence it is diffusely redirected to the work.

A recent cotton mill fire was caused because someone had pulled off an extension cord from a dropped electric light connection, leaving the bare wires exposed. A sweeper in cleaning the ceiling and wire short-circuited the open end. Sparks set fire to the lint on his broom, which he immediately dropped on the floor, where flames spread rapidly over parts of four slubbers. Cloth tacked on the ceiling to collect oil from the floor above aided the spread of fire along the ceiling. Five sprinklers operated and practically extinguished the fire.

Going After Latin American Trade.

BY S. G. WHITEHEAD.

A salesman may represent a manufacturer whom he knows is honest and reliable and whose goods will always prove to be "like the sample," but it's a difficult job to make a new customer in a foreign country believe all these things strongly enough to agree to pay cash against documents, especially when he is used to buying at 90 days sight. This briefs the experience of the "star" salesman of the Unexcelled Hosiery Company, on his maiden trip in South America, after a three weeks' experience in Rio de Janeiro. In fact he found it necessary to, in some extent at least, meet the deferred credit methods to which Brazilians are accustomed.

Sao Paulo and Santos are names familiar to every "coffee drinker," a term which includes probably ninety per cent of the adult Americans. In this installment Mr. Whitehead presents a thumbnail sketch of the two cities and their business possibilities as he knows them. He also takes the reader down the coast to Argentina, a country which is destined to become one of our largest and best customers in that section of the world.

After a hot, dusty twelve-hour railway journey over the Central Brazilian Railway from Rio, Mr. Salesman reached Sao Paulo.

It was somewhat of a surprise to him to learn that this city, situated sixty miles from the sea coast at an elevation of 2,500 feet, could boast of a population of 400,000 people. The climate proved to be much more agreeable than that of Rio owing to the altitude and he was soon located in the main hotel of the city. The first day was spent in sightseeing which proved to be very much the same as Rio on a smaller scale. Big stores, a good theatre and fine municipal buildings satisfied him that the city was in a state of prosperity and he decided to pass the time here until he could catch a boat for Beunos Aires at Santos, the sea port for Sao Paulo. An interesting trip was made by tramcar to Ypiranga located about 30 minutes ride from the center of the city. Here is found a very good natural history museum, and many fine paintings and historical relics. Also an extremely fine monument erected in 1885 to commemorate the proclamation of independence in 1822. Mr. Salesman was surprised to note the amount of space devoted to samples of coffee in this museum and having the good fortune to locate an English resident of Sao Paulo in the museum, asked him the reason.

"My dear sir," explained the Englishman, "you are now in the capital of the greatest coffee producing state in the world. This state of Sao Paulo produces 210 million dollars' worth of coffee each year which is more than two-thirds of the world's crop. We live by coffee and owe to coffee our existence. Do you wonder that we give it the foremost place in our museum?"

"But why is the center of this business, which is really dependent on exportation, located at an inland point?" questioned the salesman. "To my mind it would appear logical to make that center in some seaport."

"We have our seaport in Santos which is but a few miles from Sao Paulo and reached by one of the finest railroads in the world," further explained his English acquaintance. "But here, in the hills, we have a climate which is healthy and comfortable, whereas in Santos you find the unbearable heat of the lowlands. Is it not more practical to do most of the business here amid pleasant surroundings and do only that which is actually necessary in the heat of the lower city?"

Mr. Salesman acknowledged the wisdom of his informer's remarks and after further conversation returned to his hotel with a feeling of sincere respect for the pioneers who had developed the country of Brazil.

The following day was devoted to business but with little success. The merchants in Sao Paulo were purchasing considerable goods from the wholesalers in Rio and would not commit themselves to direct importation. After having been faced with this situation in several places the salesman decided to make a strong effort to sell a line of goods to the main importer of the city, on whom he had very fine references, and if necessary to exceed the 30 days credit limit authorized by his factory.

Accordingly a final call was made on the importer in question who argued at great length on past difficulties encountered when importing directly from North America. In meeting these difficulties Mr. Salesman appreciated very fully the information he had acquired before leaving New York for he was able to convince his prospective client, on all points brought up, that his business would be handled satisfactorily.

Eventually an order was given but only on a basis of sixty days sight draft. However, Mr. Salesman felt that this order would serve to make his goods known in Sao Paulo and was satisfied.

That night he cabled his factory regarding the order

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advising the allowance of 60 days credit and explained that this must be done in order to gain a footing in Sao Paulo to help on the next trip.

He learned that within two days an English steamer would leave Santos for Beunos Aires and decided to take passage on this boat. Accordingly the following day he left for Santos by the Sao Paulo Railway. There is also a railway connection between Sao Paulo and Montevideo, but the journey is long and tedious and the sea voyage is usually preferred.

The trip was short but the scenery wonderful. Passing down the mountains over the most expensive piece of railroad in the world, he saw on all sides the result of the coffee production. Everyone seemed interested in that business and it was with keen regret that he realized how little he was in touch with it all. Had he been able to speak the language he could have discussed the different sights of interest with his fellow passengers. This, however, was denied him.

Arrived in Santos he took a cab to a hotel located on the beach, having been so recommended by the hotel proprietor in Sao Paulo. He was not troubled with his samples as, except for a few, these had been re-exported from Rio de Janeiro to Beunos Aires through the medium of the Express Federal. Inquiry at the hotel brought out the fact that the English steamer would not call at Satos for two or three days, so Mr. Salesman settled down to wait in patience.

How long seemed the time in passing. The city has nothing to offer the sightseer except the beach and two days was too much sea view for our friend. To the writer Santos will always be "the city of unbearable heat" and Mr. Salesman found it so. The buildings are low and very brightly colored. A house may be colored a bright yellow and alongside it you will find one colored in blue. It is a riot of color which in the bright sunlight is almost painful.

The docks of the city are wonderfully up-to-date and have all the great capacity of a large port. At first Salesman was surprised to note the manner of loading coffee which is done by natives. Each one carries a sack on his back aboard the ship, leaves it there and returns for another. It would seem to load by derricks would be more economical, but it has been proved otherwise and the old-fashioned method is still used.

The time passed eventually and it was with personal pleasure Mr. Salesman sailed from Santos enroute to Buenos Aires, having wired his old friend, the wool buyer, to reserve rooms for him. When planning his trip, while in Rio, he had decided to go direct to Beunos Aires, making a call in Montevideo after he had seen "the trade" in the larger city. This was fortunate as he found his steamer did not stop at Montevideo. Once on board he took life easy until Beunos Aires was reached, where he was met by his friend the buyer who assisted him in the passage of his effects through the Custom House. A short taxi ride landed them at the Hotel Plaza where was found all the comforts of a large North American hotel.

That evening Mr. Salesman found to his annoyance that he had brought from Brazil quite a lot of Brazilian currency and regretted he had not borne in mind the advice given him in New York on the question of currency exchange.

Conversing that evening with Mr. Buyer regarding the business done in Brazil, he felt highly satisfied to be able to show such good results on his first trip to that country and asked his friend how he had found conditions in Argentina.

"Not as good as could be expected," said Buyer, "the low value of North American Exchange makes purchasing almost impossible. The American dollar has been steadily declining in value and has reached a point where I can now procure only two pesos and twenty centavos paper for each American dollar on negotiation of my drafts instead of two pesos and thirty-five centavos which is the par value. In addition to that, wool is quoted at an exceptionally high price, and freight and insurance rates have been steadily rising. The result is almost disastrous to my plans. I must pay high for the wool, high for freight and insurance and I lose about seven per cent on exchange when purchasing."

"But are those conditions not likely to improve?" asked Salesman.

"The general opinion around the city is that they may get worse," was Buyer's reply.

"I had a long talk with the manager of the American Express Company here," Buyer continued, "and he states that conditions are likely to get worse as regards exchange as the balance of trade is becoming very largely in favor of Argentine on account of the enormous increase of exports as against a falling off of imports. Previously this condition was met by shipments of gold from the debtor country to the creditor country, but with an embargo against gold exportation in almost all countries that method of steadying the market is not possible and there is under way a plan whereby the governments of the United States and Argentina will be able to limit fluctuations in exchange to a certain extent by international agreement. However, the question of exchange in this country is so complicated that I feel you had better get your information first hand from an expert."

The following day Mr. Salesman called on the American Express Co. to exchange his Brazilian currency for that of Argentina. Here he received letters from home which were extremely welcome, also a cable regarding his Sao Paulo business, which read:

"Shipping goods Sao Paulo sixty days, refuse further extensions exceeding thirty days."

It was annoying to him to feel that his hands were tied, that he might have to turn down good business on account of credit terms. He decided to take advantage of the opportunity to call on the manager of the company in whose office he then was. Here he found a wealth of information regarding business conditions in general and found at his disposal not only a list of the leading hosiery importers of Beunos Aires, but also a full credit report on each, all of which information he highly appreciated. Deciding that a month, at least, could be spent in Beunos Aires, he set himself to study the market of this centre of Latin American commerce very thoroughly. Through the courtesy of the Express Company's manager he became a visiting member of the American Chamber of Commerce and further assisted his efforts by the information on file there.

The days passed quickly in Buenos Aires for it was a city of business and the merchants were anxious to procure merchandise of good quality manufactured in North America to take the place of goods formerly purchased

in the European market. He decided to follow the same system in his business dealings with the Argentine merchants as he had followed in Brazil and spent considerable time in classifying his prospective customers as regarded credit terms. He found his clients in Buenos Aires much easier to deal with than those of Brazil and was astonished at the demand for his goods. Sales were made readily if payment was permitted after inspection of the goods by the purchaser. This arrangement was quite satisfactory to him in most cases, and on consultation with the banks and other sources of information open to him he was easily able to decide whether the risk of shipment on such terms was advisable or not. The customs requirements were strict here, as in Brazil, and many complaints were heard from the different buyers regarding the careless manner in which North American invoices were prepared. All of this was carefully noted for the purpose of avoiding such errors on shipments from his factory and the reports sent home covered thoroughly each and every objection raised as to methods of shipment then used by the North American manufacturer. It was difficult in an ordinary letter to cover in detail the difficulties but in general they were as follows:

Insistence of paying against shipping documents at port of embarkation. This method of financing proved to be absolutely impossible in connection with merchandise newly introduced into the country and especially in connection with a class of merchandise which might so easily fall below the standard of the sample shown. So great was the fear of difference in quality on hosiery, that one large importing house would give no order, unless this order was supported by an official contract to which was attached the sample from which purchase was made, with full details as to weights, sizes and colors of the goods. To this house a large bill of goods could have been sold if Mr. Salesman had been in a position to make such contracts, but he unfortunately carried no power of attorney for the firm he represented and therefore was legally unable to do so.

He discovered, in this way, that the salesman in Argentina should be furnished with a power of attorney which sets forth in detail the exact power possessed by him and such power of attorney must be vised by the Argentine Ambassador in Washington. He found it would be well to have this power legalized by the Ambassadors of each country to be visited on a selling trip, as many are the demands made on a salesman abroad regarding his authority to act for his firm. Mr. Salesman was encouraged to learn, however, that once confidence is established between factory and buyer, the buyer very often prefers to pay in New York or some other port of shipment, so as to take advantage of favorable exchange rates and discounts which are quoted on cash purchases.

IMPROPER INVOICES AND CARELESS WEIGHTS THEREIN.

When goods are entered in the Custom House of Argentina the importer may make his declaration by filing the shippers' invoices, which have been consulated by the Argentine Consul at the point of origin. Should these invoices be found incorrect, however, on examination of the goods, the authorities levy a fine against the goods which is in many cases very heavy. So many losses have been suffered by the Argentine importers on account of careless invoices that few of them accept the shipper's documents as correct, preferring to reweigh and reinvoice each shipment before declaring them to the customs authorities. This process is called "Taking contents" and whilst it is slow and expensive, it is found to be safer in the long run and more economical. It is well to bear in mind that the authorities in Argentina seek diligently for opportunities to levy fines on import entries and too much care cannot be exercised to have all documents exactly correct. The class of goods in each case, quantity of each class and their weights, with and without wrappings, should all be shown with the utmost care and nothing should be placed in a case unless it appears on the invoice.

Marking and numbering of cases should be plain and large, appearing on four sides of the case and care should be shown that these marks and numbers are clearly and correctly entered on all documents covering the cases.

The reputation of North American exporters on packing is very bad. Shipments are made in old dirty boxes, made of thin wood not reinforced at the corners and shipped without iron straps. This results in damage and losses by pilferage and by water. Some houses specify the thickness of wood to be used in making cases in which goods are shipped to them and how they are to be reinforced. Mr. Salesman heard of instances where goods were shipped from the United States in pasteboard boxes which were persistently robbed in transit, whereupon there is no redress either from the insurance or steamship company. This point was so important that the Argentine manager of the American Express Company specially requested the New York office of his company to refuse all shipments offered if packed in pasteboard boxes or cartons. Another complaint was against the use of larger cases than necessary, which resulted in additional and useless expense for ocean freight which meant an added landed value on the goods. The question of packing, however, is really nothing more than common sense, but how few exporters realize it.

(*To be continued.*)

[In order to refresh the reader's memory on Argentine currency, the following extracts are reprinted from the January, 1916, number of COTTON.—Editor.]

The basis of Argentine's monetary system is the gold standard. The unit is a gold peso, divided into 100 centavos, weighing 1.6129 grammes of gold .900 fine, or say 1.4516 grammes fine gold. Its parity value expressed in terms of U. S. currency is $0.96475. The parity of $1.00 U. S. currency in terms of Argentine gold pesos is $1.0365.

The actual currency of the Argentine is government notes, to which a fixed value of 44 per cent of the gold peso has been assigned by the government. This parity of 44 per cent is maintained through the medium of a conversion fund which exchanges gold for paper, and vice versa, on the basis $44 gold for $100 paper or $227.27 paper for $100 gold.

Since, then, the value of the paper peso is fixed by governmental decree and is maintained through the conversion fund, the paper peso represents 0.6387 grammes of fine gold, and its parity expressed in terms of U. S. currency is $0.4245. The parity of $1.00 U. S. currency in terms of Argentine paper pesos is $e/1 2.35576. The sign

(*Continued on page* 299.)

KNITTING SECTION

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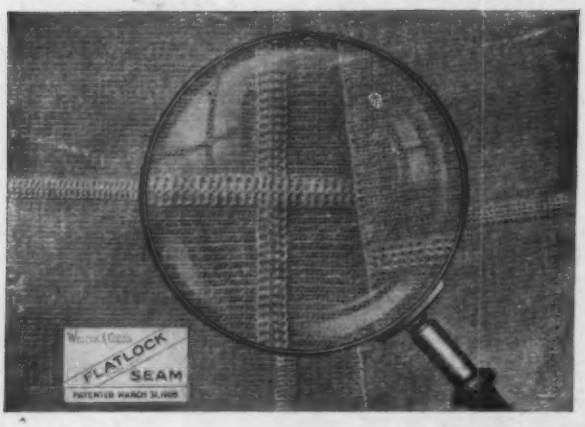

With the last salvo of artillery on Nov. 11th the World War came to an end and the new era of reconstruction began.

This great change affects not only the political relations of many nations, but their commercial life as well.

Greater attention must now be paid by those who make and those who sell knit underwear, to the building up and maintenance of civilian trade by the study of fabrics and their finish into garments to meet the discriminating tastes of the wearer.

Let us resolve from this time forth that American goods shall be known the world over as the best type of merchandise, by embodying in the products of our plants all improvements that will make our merchandise a better article for the merchant to sell, and for the consumer to use.

The Flatlock Machine is the latest important improvement in the Knit Underwear industry. The superiority of the Flatlock Seam upon its introduction was quickly recognized, resulting in its instant adoption by the United States and Great Britain for the soldiers and sailors.

When Flatlock seamed knit undergarments are shown to prospective civilian customers, they, too, are led at once to see the possibilities of greater service and comfort in a seam that is flat, thin, soft and strong, as well as elastic, and that will not rip nor ravel.

While formerly a seam, only approximately flat, was made in TWO operations, today, an absolutely flat seam (as thin as the fabric) is produced in ONE operation on the Flatlock Machine. This, of course, is an *economy to the manufacturer*, and there are already over 200 mills in the United States, Great Britain and Canada using Flatlock Machines and ready to supply knit underwear seamed with the Flatlock Seam.

The Flatlock Seam will help materially to sell the product of *your* plant because it makes better merchandise for both merchant and customers. The demand for Flatlock seamed underwear is becoming more and more insistent. Unless you are already using Flatlock Machines, you should investigate their merits.

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The Knit Goods Market

For three months, from the day almost when the nations at war agreed upon an armistice, the knit goods industry of the United States, in coping with an inexplicable market situation, has been waging a magnificent fight. If the distributors, after the memorable conference of January 17 with manufacturers, have at any time felt "we have met the enemy and they are ours," they must by this time realize that the epigram was not well applied, for they are coming from cover and yielding to pressure from the rear —the demand of the retailer that he be given some assurance that he will have merchandise when he wants it.

It cannot be said as a broad proposition that market conditions have radically improved in the last month, but it is a fact that there are spots in which the situation has become considerably more encouraging, and but for labor disturbances it is believed a fair measure of confidence would be manifest. Buying by jobbers continues on the hand to mouth plan and is for only known requirements and spot delivery—not infrequently shipment by express being specified in orders.

Slowness of recovery is more pronounced probably in low-end hosiery than in any other line of knit goods. This may be attributed, first, to the seeming belief that there are large surplus stocks somewhere, and, second, to the fear that the consumer will not be willing to pay war-time prices for stockings that four years ago were to be had over the retail counter at less than present cost of production.

While the war was in progress and merchandise was scarce, the public, it is pointed out, was willing to pay almost any price to get the goods. Now, with no more supplies being made up for the army, navy and marine corps, the consuming public feels that necessarily stockings and underwear for civilian purposes must be plentiful and therefor under war prices.

The jobber contributed to this view, in publicly demanding of manufacturers that they guarantee their prices against reductions as the season advances and has led himself to believe, or affects to believe, that price declines are inevitable. He accordingly remained away from the market, and this is what has happened: The manufacturer, unable to sell his product, declined to buy yarn and curtailed production, either shutting down on operations entirely or operating on half or less time. The spinner, finding no market for yarn, also eased off on production and his operatives, like those in the knitting mills, were, most of them, enabled to earn but a fraction of their former pay. Labor thus forced out of employment was left with diminished buying power and paid fewer visits to the retail store. The retailer, seeing his business dwindling, ever so little perhaps, and having on his shelves some stock bought at the high prices of six months ago, entered upon the policy of buying only what he felt was half sold. This gets back to the jobber, thus completing the circle of circumstances to which stagnation can be attributed.

But the seasons do not adapt themselves to commercial fears, and with the door to Spring already ajar, bringing a reminder that it were time to prepare for the business that will be done in the summer, timid ones are crawling from their holes. In the last few weeks retailers, more especially those who draw direct from mills, have been doing some buying. This necessarily has disturbed the nap of the jobber, and he is coming to town for knit goods. Summer goods not in mill warehouses will have to be made in a hurry, and there will not be a week to spare in completing deliveries for Fall distribution.

It may be some little time before scared merchants recover sufficiently from their fright to buy on a basis of what requirements will be. They will buy sparingly as indicated in recent transactions which virtually marked the slightly upward swing of the pendulum.

The first spurt—not startling—was in underwear for Fall. There had been for some weeks considerable feeling out of the jobber by the manufacturer. The latter wondered whether price really had anything to do with the hesitancy of the merchant to operate or believed he would require no additions to his stocks. It developed that the jobber wanted underwear for he began buying moderately when a slight price reduction,-amounting to less than five per cent was offered.

A New York State mill which experimented with price revisions announced a reduction on January 25, and began taking some little business. About the time the jobber became interested, the manufacturer sent out a letter to the trade announcing a return to the former prices. This had a more desirable effect, from his view point, than the reduction, as was disclosed to him when, inquiring of a former customer why his usual order had not been forwarded, he was told: "We had our order ready several weeks ago, but filed it away when we heard your prices had been reduced; we thought they might go still lower."

Since then the mill has captured the order. This circumstance is one of many that might be cited for illustrating the adverse effect of cutting prices to force business.

A Utica, N. Y., mill which circulated a price sheet as of January 27 has since declined business at the prices then mentioned, an advance having been announced two weeks later.

An Ohio underwear mill making a range of garments and selling its production through its New York office, has been having a steady but not heavy business for the last four weeks.

The Morris Mills, Amsterdam, N. Y., men's flat and ribbed underwear, is reported selling most of its former customers a fair per cent of what they bought normally and the Harders are understood to be taking business in reasonable volume for their High Rock Knitting Company, at Philmont, N. Y., men's all-cotton fleece lined shirts and drawers.

Several mills which in mid-January withdrew their lines are back in the market, with the prices named at the backfire opening after the conference of mill and jobber. Pennsylvania mill booked a 52-case order from a western house for light-weight underwear. One of the February surprises was the reduction, by a dollar or more, announced by the P. H. Hanes Knitting Company on its 16-pound

cotton union suits, with what result has not been ascertained.

A New York State mill whose salesman went on the road during the week of February 10 is in receipt of enough orders to indicate that buyers are not averse to taking a few cases when assured that mill prices have reached bottom. The trouble has been that some mills were so eager for a turn-over that in some instances smashing figures were quoted, leaving the impression that perhaps still lower prices might be expected. It develops, according to some operators, that the mills known to have put prices on a sink-or-swim basis are receiving the most attention.

A buyer who had been given a price on 16-pound cotton union suits so low that he felt the mill must be taking a loss went home without taking a dozen from anyone, if his statement is correct.

Another jobber, who was in the market looking the hosiery situation over also returned without having left an order. He had been given a quotation on misses 28-ounce ribs that seemed to stagger him. On the basis of a price at which 10 single southern carded yarn was sold recently there would have been a difference of only 45 cents between the cost of the yarn going into the stockings and the finished hosiery. His reply to the agent quoting the price was: "I am not interested; your figures are entirely too low, I don't want the goods at any price. When I do I will be willing to buy, at the market."

Similar instances of scaring buyers out of the market are not rare, and will serve to explain in a measure why even underwear, which has been a better seller than hosiery, still is far from a good proposition for the mill.

In the opinion of some persons in the trade there has been too much piece-meal readjustment—that is, prices have been handled in a manner to shake confidence. One important factor presents the view that so soon as manufacturers will show enough courage to name prices that cannot be reduced without carrying a loss and will say to the trade, "There are our prices; we either will sell at these prices or close our mill," buyers will be less indifferent, provided there can be shown a few instances of manufacturers sticking to what they say.

Some criminally low prices on low end cotton hosiery are heard. Alleged quotations are peddled about, apparently by interests seeking to buy on their own terms regardless of losses to mills. It is significant that at even the very low figures mentioned the merchandise concerned does not move.

In contrast with this situation is the steady though small business in women's mercerized stockings, which are selling at prices well above those of a year ago. A leading house on Franklin street, New York, shows signed orders for 220 needle goods at $3.50, the same line selling at $2.85 on December 15, 1917, and $3 in January, 1918. The same establishment is booking orders for mock fashion mercerized, 220 needle, at $3.75. These are southern goods. One mill in the South is getting better than $3.50 for the 220 mercerized minus the seam. These mills are understood to have sufficient business, on the books and in prospect, to keep their machinery on this line operating to capacity until May.

Misses fine ribs, 300 needle, are being quoted by at least one mill at $2.75. Sales by another mill have been made since February 1 at $2.60, against $2 on November 1, 1917. In March, 1918, this line was selling at $2.35 for black and $2.40 for white. Prices mentioned are on size 7.

Misses 28 ounce ribs are being held for $1.75 by several selling agents, although lower quotations are heard. This is a drop of 50 cents from the peak. Quotations are based on 7s, rise 10 cents.

Some few manufacturers have blundered in offering 176 needle half hose at prices which would not look well in print. They are not only getting no business of moment at the ridiculously low figures, but have supplied captious jobbers with an argument against the maintaining of prevailing prices generally. When 10s single carded yarns was selling at 61 cents these socks were being taken at $1.75-85. Since the signing of the armistice the price was marked down to $1.65, representing the decline in the price of yarn. Just now these socks have been priced so low by several mills that jobbers affect to see warrant for the stand that at $1.75 and later $1.50 to $1.65 they were yielding an abnormal profit, and that therefore they ought to sell down to the lowest prices mentioned recently.

It would appear that the first step toward smashing mill prices was taken by jobbers, and that they have been encouraged by manufacturers naming such low quotations as to invite the suspicion that buyers were justified at the start in remaining out of the market. It would seem also that the remedy for the unfortunate situation brought about by obstinacy and bungling lies in sharp curtailment, probably the only guarantee against further ruinous reductions.

An Englishman who has been giving some attention to the market, in quest of both hosiery and underwear, says he found such wide discrepancies in quotations that he felt this was not the time to buy. Yet some goods are being taken for export, notwithstanding buyers for foreign account are inclined to hold out with domestic buyers for a lower market.

It is conservatively estimated that not more than five per cent of the knitting mill help in Philadelphia is identified with any of the workers' unions, and there have been but few instances of operatives asking for a reduction of working hours. Many manufacturers would be willing to be guided by the wishes of a majority of their employees, but they are averse to being dominated by less than five per cent. It is felt that when operatives realize that 48 hours will mean flatter pay envelopes few will support the demand of the union, representing the very small minority.

Thus far there has been no united action by any of the textile groups of mills in Philadelphia. Employers all appear to be waiting for what others will do, but there is widespread opposition to any reduction in working hours without a corresponding reduction in pay. There seems not the slightest doubt that if employers were to act in concert it would be a very simple matter to rout the union and weaken its present mild influence in Philadelphia. While there is no intimation of even veiled threats of violence in the event that employers do not concede the eight-hour day, the Citizens Committee, seeking to harmonize differences, attaches much importance to the possibility of an industrial upheaval, and this more than any other factor doubtless guided employers in their policy of silence, with a leaning toward a disposition of the matter in confer-

ences of operatives in the respective mills, regardless of the union, whose heads are not being recognized generally.

Commenting on the absence of business and declines in cotton yarn prices, the spokesman for a leading yarn house, says: "We believe that shortly a price will be made on something that will start things." This person would not say whether he referred to cotton. It was his opinion that the export demand for cotton of which so much was heard some weeks ago had not developed for the reason that manufacturers overseas would not buy at present prices. From what could be gathered it apparently was the belief of this person that yarns were doomed to drop to new low levels.

Forty cents was quoted for 10s single southern carded on cones, and sales are reported to have been made at that figure last week. This is in contrast with 13½ cents a little over three years ago and represents a drop of 21 cents from the government maximum. Cotton was selling at but a little better than seven cents against 25 cents and thereabouts at this time.

A 2-ply combed peeler, government maximum $1.60, was offered at $1.05, which is 60 cents above the price of three or four years ago A southern 30 is offered at 47½ cents, a drop of 29½ from the government maximum.

A Philadelphia mill last week bought 30s single combed peeler at 75 cents. In the same week 65 cents was quoted another manufacturer. Some allowance probably ought to be made for a difference in grades of yarn.

Mercerized 2 ply 60 was quoted at $1.20 to a manufacturer who is drawing against a former contract at $1.60.

Most yarn merchants say they have very little sold ahead and are glad of it, feeling that spinners owing deliveries at prices of ten weeks ago are facing trouble with most of their customers.

Declines in yarn prices since the conference of manufacturers and jobbers in New York on January 17 are pointed out as illustrating the very serious commitments made by manufacturers who guaranteed their prices.

The end of February showed no material improvement in hosiery, and it begins to look as though a general shutdown would be necessary for keeping stocks down to a level where it might be assumed fair prices could be obtained once the jobbing trade decided to take hold. An executive of a jobbing concern operating stores in two cities offers an explanation supporting this view. He said: "Manufacturers do not seem to understand the jobbers. It should be remembered that we bought rather heavily for deliveries of hosiery in October, November and December last, believing as we did that after January 1 we could not have hosiery shipped in strawboard boxes. We therefore have these goods (less what was thrown back upon mills through cancellations). Depend upon it, the jobber and retailer will buy just as soon as they have been able to move their high-price goods. The retailers in our cities are doing fairly well, notwithstanding many persons are out of employment. These people are selling their Liberty Bonds and War stamps which they had bought out of their savings and are spending the proceeds."

Some persons see in the policy of the retailers—holding their high-price stocks for a war-time profit—a partial explanation for the attitude of the consuming public, which has been led to believe that the return to peace conditions must inevitably mean lower prices. Much of the blame for the failure to comprehend the situation can be laid at the doors of persons in Washington who speak as government officials. On February 17 Secretary of Commerce Redfield said: "Prices must come down." On the same date an arbitrator in the wage dispute between four of the largest meat packing companies and their employees awarded an advance retroactive to November 10 which it is estimated will add $13,000,000 to the companies' payrolls annually. The award was based on the increased cost of living, which now must again increase, unless the packers do not tack the wage boost to the prices of meats. Yet Secretary Redfield says prices must come down and a great part of the public is prone to agree with him. They will, when the cost of producing comes down, but that is not likely to happen so long as wages are being forced up in response to manufactured sentiment.

While it would seem absurd to mention prices in any reference to market conditions, as they cannot be accepted as a basis from which to work, it is in order to say that a sale of misses 28 ounce ribs was made quite recently at $1.65 flat. Less than 25 per cent of the order was for sizes 7 and under, so that the bulk of what the buyer got was of the larger sizes.

Another noteworthy transaction was a sale of split-sole 176 needle half hose at $1.90. This price may be accounted for by the fact that this type of sock is scarce, but it is sufficient to show that when a buyer really must have goods he will pay the price. Several days after the order had been placed the merchant wired instructions to ship by express.

A different story is told in a sale of 144 needle half hose, sewed toe, at one dollar a dozen, by a commission house which on January 1, 1918, sold 144 needle socks from the same mill, but full seamless, at $1.35. During the week in which that price was gotten for 144s, this house sold full mercerized half hose at $2.75; misses 28 ounce ribs at $1.40 on 7s and 176 needle half hose at $1.35. Thus it is shown that in some lines to-day's prices are above what they were a year ago and in others lower.

Some of the low prices that are heard can be ascribed to the fact that quantities of merchandise a long time in New York warehouses awaiting shipment overseas have been thrown on the market by impatient holders, more particularly, perhaps, because of the embargo on importations into Great Britain.

In the last two weeks ladies' silks valued at $350,000 which had been held in a New York warehouse went out to foreign houses in a single shipment. Their destination, however, was not ascertained.

A Pennsylvania manufacturer is shipping to England, against orders placed recently, 15,000 dozen pairs of fibre silk hosiery for women, and has assurance that an order for 5,000 dozens additional is on the way. While this mill is having little domestic business and reports the market "dead" as to fibre half hose, the owner is concerned over the fibre thread situation. He is receiving no more than 60 per cent of his contract quantity. Unless deliveries improve, he says he would have little interest in fibre half hose, priced now at 70 cents above the price at which deliveries against old orders were made in the last month.

In response to an inquiry as to whether Great Britain's embargo on imports still was in effect, the Department of Commerce writes:

> The importation of hosiery and knit goods into Great Britain is still subject to import license. Regular importers have been able to secure licenses for limited quantities based on their 1916 imports, but there has been no general relaxation.

The person buying fibre hosiery from the mill above referred to says he has obtained license under which he will place the goods in London, but he doubts whether he could have procured the license had it applied to any but silk or fibre.

A Pennsylvania mill is operating exclusively on foreign orders, mostly from Latin American countries. In the language of a commission house head, "while jobbers in the United States are sleeping, foreigners are getting the goods at prices which cannot go lower and ought to go higher."

Of course the full stimulus of the export trade cannot be felt so long as Great Britain maintains an embargo on imports and France restricts her purchases abroad pending a readjustment to peace conditions.

The representative of a very large establishment having eight merchandise warehouses in Australia and four in New Zealand is in this country arranging for buying underwear, hosiery and sweaters direct from mills. This representative says business which his house formerly carried on with Germany is to be turned over to manufacturers in the United States; that if the goods were bought in England distributors in that country would first have a profit. The idea is to eliminate, so far as possible, all commissions and unnecessary expenses. His establishment gives as reference the banking house of Brown Brothers & Company.

A person in Dublin writes: "I am anxious to represent in Ireland a first-class United States hosiery manufacturer. I am in touch with all the best hosiery people here, and can furnish references."

Knowledge that business is being offered to mills in the United States by foreign buyers no doubt is a factor in moving some of the domestic jobbers marketward. Their coming in sincerity, willing to grant to mills a price consistent with cost, also is being hastened by the extent to which production is being curtailed. There ought to be further curtailment, for several reasons.

First, it is desirable that stocks be so reduced that buyers will not be in a position to dictate prices. Second, there are some accumulations of merchandise due to cancellations or orders and return of merchandise. Every merchant who has been guilty of reprehensible conduct in the direction of undertaking to shift his burdens to mills ought to be compelled, through scarcity of merchandise, to reinstate every order cancelled and accept delivery of every dozen of knitted articles in warehouse awaiting termination of controversies.

In the last few weeks there has been a fresh flood of attempted cancellations. In almost every instance the merchant was willing to accept the goods at a smashing reduction in the price, indicating that the goods really were wanted but that there was a determination to take advantage of circumstances for forcing extreme concessions. Even where concessions were allowed and accepted, merchants in some cases have come back for more or have arbitrarily returned goods or arrogated to themselves, when remitting, the right to further scale prices. In some instances manufacturers have consented to the return of merchandise, after inspection of samples sent to mills by objecting customers, only to find later that allegations as to imperfections or seconds involved only a dozen or two in an entire case.

One jobber in New York makes the boast, "The retailers have been working the jobbers; now we are going to work the manufacturers." This merchant, doing business on the East Side, stated that jobbers in his section of the city have an organization, with 92 members, the object of which, apparently, is to embarrass manufacturers undertaking to hold merchants to the terms of contract. Whether the organization does or does not exist, it has become evident that East Side jobbers are conspicuous in numbers among those seeking by hook or crook to evade their obligations to mills.

To provide the means for fighting fire with fire, a number of mill executives are urging the establishing of a fund with which to institute and maintain court proceedings against every indefensible cancellation involving any subscriber to the fund. It is proposed furthermore that every manufacturer before accepting a new account inquire from the Manufacturers' Association whether parties offering business were guilty of unfair practices during the post-armistice period. It is the hope that the chief offenders will be smoked out.

Several of the more resourceful sweater coat manufacturers have hit upon plans for keeping their operatives employed in pushing production while jobbers in the main are waiting for the signal to operate on a basis justified by the outlook.

In one mill selling to jobbers a considerable business is being had with retailers. The management, having assurance that the retail trade was interested in almost anything but staples, of which there appear to be some high-price stocks, went out after some of the direct-to-retailer trade, with the result that some of the mill's jobber customers will not be able to get orders through on schedule. "I have been asked by several jobbers," this mill executive says, "why have you turned to selling retailers?" My answer is, 'the jobber has forced me to change my selling plans.'"

The mill is sold well up for the next two months, and the manager says he positively will not turn back a single retail customer's order to accomodate a jobber patron.

In another mill where business was lagging and there was no encouragement from jobbers, the executive some weeks ago hit upon the expedient of experimenting with mill-to-consumer transactions. Advertising under a name which did not disclose that of the mill, the manufacturer soon was in receipt of household orders, and in some instances, the executive says, he has had repeats. It is held that so long as the public harbors the belief that dealers are reaping war-time profits, it will be an easy matter for mills to establish a business of selling direct to consumers, and steady increases in the business of some of the leading catalog houses, as shown in their recent financial statements, indicates that the public is pursuing the course which would appear to eliminate all but two profits—those of the manufacturer and the mail order establishment. Thus it would appear that the very interests which invariably decry the catalog house are forcing business to it, and it is not improbable the retail trade will feel the effect.

Manufacturers of light weight sweaters—garments which are popular at the summer resorts—are interested in reports of momentous operations in bathing suits for next summer. Shipments are understood to be going forward in sufficient volume to indicate expectations of a brisk shore and mountain resort season. This is predicated to some extent to the increased travel to the Florida resorts for the winter months. Manufacturers are looking forward to a record demand for resort garments, and it is a question how far increased manufacture in these lines may interfere with normal production of the heavier garments. While unseasonal weather has retarded winter business, the prospect of an early spring is viewed as promising a compensatory volume for a great part of 1919, and an outlet for all lines of light weight knit goods fully up to productive capacity.

Why the distributing trade deferred the day of its coming to market becomes the more incomprehensible the more the situation is studied.

One of the mills preparing for a flow of business is the Quaker City Sweater Mills, Philadelphia. B. E. Block, the president and treasurer, said, "We are not doing much just now on Fall lines, but knowing what buyers think of our samples and assured our prices are right, I have no fear about not being able to give employment to our whole force of operatives. We have bought several additional flat knitting machines, which we will have installed in a few weeks. That's how I feel about Fall business. We have sold up to May on our silk lines, although the prices are high, something we are not responsible for. The cost of silk and good mill help makes the price of the sweaters."

Among the Knitting Mills.

A report from Durham, N. C., states that six small knitting mills in this city have closed down their plants owing to a shortage of orders, and others are expecting to close down within a short time, it was learned today. The mills, it is stated, are overstocked, and have no orders to unload the stock. The closing down is indefinite, it is said. None of the larger plants in the city are affected.

At a meeting held in Statesville, N. C., the stockholders of the Queen Knitting Mill Co., elected officers and directors as follows: E. B. Watts, Dorman Thompson, R. T. Weatherman, F. B. Holland, J. L. Sherrill and F. B. Bunch. F. B. Bunch was elected president, R. C. Bunch secretary and treasurer.

The Glenn-McLean Knitting Mills, of Gastonia, N. C., have been organized with $50,000 authorized capital and $10,000 subscribed. The incorporators are: George G. Glenn, Robert C. McLean and Harry Rutter, all of Gastonia.

B. J. Priester, who was recently reported as planning to establish a knitting mill in Memphis, has decided to locate the mill at Paducah, Ky. He has acquired a two-story building and will rebuild it to suit his requirements. The initial equipment of the mill will be 100 knitting machines.

At the first annual meeting of stockholders of the Kincaid Knitting Mill, at Griffin, Ga., a profit was found for the five months it has been in operation. The mill makes half hose exclusively, and some improvements were ordered, including additional machinery. Officers elected were: J. M. Thomas, president; F. M. Binford, vice president; J. C. Brooks, secretary; W. H. Shepard, general manager. Directors: Lloyd Cleveland, F. M. Binford, J. H. Rogers, A. S. Murray, H. V. Kell, R. O. Crouch and J. M. Thomas.

The Paul Knitting Mills Co., of Pulaski, Va., will establish a branch plant at Radford. Plans for this have been put into action, the company having a number of available machines. It is expected to begin operations there within six weeks and with machines capable of giving employment to fifty girls. The company is completing a finishing and dyeing plant, which will be ready for operation by February 15 and which will take care of the hosiery from all plants of the company.

The Knox Hosiery Mill, Cleveland, Tenn., which has heretofore sold its goods in the gray, is preparing to erect a building in which will be installed machinery for dyeing and finishing the production of the mill, which consists of men's hose.

The Asheville (N. C.) Knitting Mills, Inc., is a new concern, with mill located at the corner of Haywood Road and Buffalo street. There are 93 knitting machines (176 needle), 18 ribbers, 7 loopers and 3 sewing machines, operated by electric power and manufacturing fine seamless hosiery. The goods are finished at the mill and sold to jobbers and retailers.

The Wear Best Knitting Company, Philadelphia, Pa., manufacturer of hosiery, etc., has completed arrangements for the removal of its plant from 1822 East Venango street to larger quarters at Jasper and Adams Streets. The removal is to provide for increased capacity.

The Broadway Hosiery & Underwear Company, Inc., New York, has been incorporated with a capital of $35,000 to engage in the manufacturer of hosiery, underwear, cotton goods, etc. B. Ginsburg, Brooklyn; and E. Turoff and M. Kaplan, New York, are the incorporators.

The Rosedale Knitting Company, Inc., Rosedale, near Reading, Pa., will make alterations and improvements in its plant, and erect a new extension, the work to cost abou. $6,000.

The Sexton Manufacturing Company, Fairfield, Ill., manufacturer of ribbed goods, etc., is understood to be planning for the construction of a new two-story machine shop addition at its plant, about 30 x 66 feet, estimated to cost $30,000. H. G. Ferguson is president and treasurer.

The Westchester Kintting Mills, Inc., New York, has been incorporated with a capital of $50,000 to engage in the manufacture of knit goods. G. Boochever, S. Berger, and H. F. Aarons, 141 Fifth Avenue, are the incorporators.

The Palm Knitting Company, 140 West Twenty-second Street, New York, manufacturer of knit goods, has recently filed notice of an increase in its capitalization from $5,000 to $30,000, to provide for general business expansion.

The Sanford Knitting Corporation, New York, has been incorporated with a capital of $25,000 to operate a plant for the manufacture of knitted specialties. J. Tishman, S. M. Salke, and A. M. Ernst, 802 West One Hundred and Eighty-first Street, are the incorporators.

At the recent annual meeting of the New Castle Knitting Mills, New Castle, Pa., held at the offices of the company, the following officers were elected for the ensuing year: president, E. W. Beadel; vice-president, L. L. Wilson; treasurer, A. C. Kinter, and secretary, H. M. Moore.

The Chapman Knitting Mills, 68 One Hundred and

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HOSIERY MACHINES

SIMPLICITY — SPEED — PRODUCTION — QUALITY

Four important things to consider when buying Hosiery Machinery.

ALL PARTS ACCESSIBLE FROM FRONT OF MACHINE

Write for full particulars and samples of work.

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HEMPHILL COMPANY

Main Office and Factory,
Pawtucket, Rhode Island.

New York Office, Room 601 Leonard Bldg., 350 Broadway, New York.

Philadelphia Office and Showrooms, Rooms 205, 209, 210, Colonial Trust Company Bldg., 13th and Market Sts., Philadelphia, Pa.

Thirty-first Street, New York, has had plans prepared for the construction of a new two-story brick building, about 50 x 52 feet, to be located at 788 McLean Avenue, Yonkers, N. Y.

Nelson Nace, Cameron and Verbeke Streets, Marysville, Pa., has recently complete negotiations for the acquirement of the brick plant of the Unrivaled Hosiery Company.

The Wallace Knitting Mills, Inc., Philadelphia, Pa., has recently been incorporated under Delaware laws with a capital of $20,000 to engage in the manufacture of knit specialties. A. H. Kahn and Charles W. Schagrin, both of Wilmington, Del.,.and Samuel Krekstein, Philadelphia, are the incorporators.

Walter F. Rowles, formerly connected with the Comfort Knitting Company, Inc., Johnstown, N. Y., in the capacity of vice-president and assistant superintendent, has recently disposed of his interest in the concern.

The Knit Goods Show.

The officers of the National Association of Hosiery and Underwear Manufacturers announce a change in dates for the annual convention and exhibition to be held in Philadelphia at the Commercial Museum. This had originally been scheduled for the week of May 12 to 17, but the time now set is from June 2 to 14. This change was made because of the great interest taken in the program outlined by the recently organized export department of the National Association of Hosiery and Underwear Manufacturers. The delayed exhibition is designed to include a large demonstration of the products of the knitting mills of the United States. The later date will enable foreign buyers to arrive in this country and visit the exhibit and the two weeks will give them the opportunity to examine the products to better advantage.

The selling of United States made knit goods direct from mill to merchants abroad, eliminating excessive commissions and much expense is the aim of the Export Division of the National Association of Hosiery and Underwear Manufacturers, which is being organized by a committee of which Joseph Felden, of the Roxford Knitting Company, Philadelphia, is chairman.

Not only will sales be made direct through the Export Department, but the business will be financed through a New York banking house, enabling shippers to obtain advances on merchandise awaiting transportation and assuring them payment against shipping documents, with no unnecessary delay.

The export department Committee is planning for operations in a big and broad way, under direct management of a person qualified to give the best attention to shippers' interest. In the conduct of the Department, operated from New York, there is to be a minimum of lost motion and a maximum of economy consistent with proper and safe management.

The Committee on January 31 laid its plans before the Bureau of Foreign and Domestic Commerce and the Pan-American Union, both of which gave assurance of hearty support and co-operation. Arrangement was made for having United States consuls in foreign capitals bring to the attention of commercial interests in their respective consular districts the exhibition of knit goods to be presented in connection with the annual exhibition of the Association, in the Commercial Museum Exposition Hall. Buyers in all the commercial centres of Europe, Asia and the Far East will be apprised of the exhibit by means of posters and advertising in foreign trade publications.

The exhibit, under the auspices of the Export Department of the Association, will be arranged with special reference to the facilities of manufacturers in the United States for supplying the world, and will occupy a section of the Exposition set apart especially for the purpose, remote from the machinery, yarn and mill supplies section.

Space will be sold to exhibitors at a nominal price, in the order that reservations are made. Already there is assurance of hosiery and underwear exhibits, two large mills in particular having reserved space. It is expected sweater and other knit goods manufacturers also will avail themselves of the opportunity for meeting foreign buyers and showing what their mills will have to offer.

There will be available in the Exposition Hall approximately 40,000 square feet of space for the knit goods exhibits, and provision will be made for conference rooms in which seller and buyer may meet for mutual interest.

The Export Department has taken suite 920 in the St. James Building, Twenty-sixth and Broadway, New York.

Pennsylvania Division of the National Knitters Association.

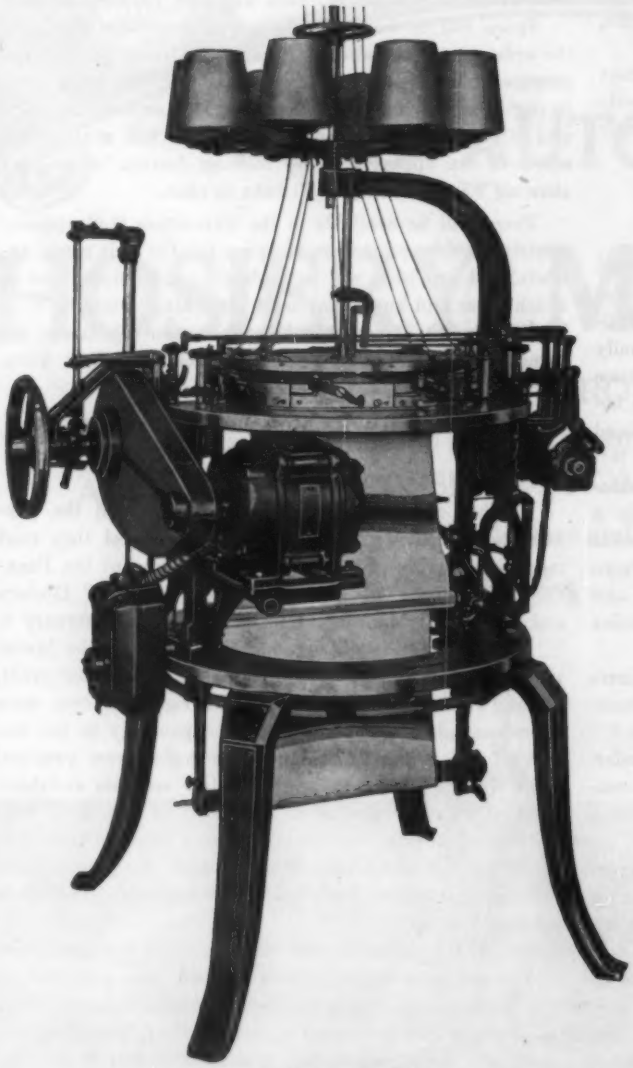
Further curtailment of mill production and the pursuing of a policy of waiting until buyers feel they need merchandise were urged at a record meeting of the Pennsylvania Division of the National Association of Hosiery and Underwear Manufacturers in Reading on February 8.

As a means toward arriving at a basis of the lowest possible prices consistent with the return of a fair profit, several reforms in the direction of rigid economy were recommended, and for the first time probably in the history of the organized knit goods manufacturers practical steps were taken for an approximately accurate ascertainment of costs. Copies of a basic form of cost sheet were distributed among the more than one hundred manufacturers present, and a long drive was made for standardizing not only methods of arriving at cost but shades and packing boxes as well.

All the preliminaries in the movement for uniformity and more economic mill operation had been prepared by the regional association, the Berks County Hosiery Manufacturers, which had spent a great deal of time in conferences and investigations and submitted reports of its work for discussion by the meeting, which was regarded as having accomplished more for the benefit of the knitting industry than the sum total of a number of previous sessions. The presiding officer was S. D. Bausher, Glorie Underwear Mill, Reading, who has been active in promoting the several reforms.

The stabilizing of prices to the trade was unanimously viewed as the first step toward putting distributors in a buying mood. Instances of the shading of prices for inducing jobbers to buy were cited, invariably proving a failure at the start and tending toward further delay in operating. The point was well illustrated in the citing of

Wildman Motor Drive



Drive on Bathing Suit Machine
Back View.

Look this drive over, and then go out in your knitting room and form a mental picture of how it would look if all the machines were equipped with Individual Motors. Dangerous belts and unsightly line shafts done away with, bettering the light and adding to the convenience of the knitting department.

But the improved appearance of the knitting room is not the only advantage. The motor drive increases the production of the machines 10 to 15%, as the loss due to belt slippage is entirely done away with.

The drive can be attached to a Wildman Belt Driven Machine in a half hour's time, by simply taking out the old side and slipping in the new drive complete. No drilling or tapping is necessary.

WILDMAN MFG. CO.

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the experience of two competing manufacturers of underwear, each striving to interest a well known buyer. Referring to the competitors as A and B, the former quoted a price of say $9.50. B thought the opporunity ripe for acquiring an interesting order and named $9. When A heard of this he felt that by shading his competitor's price he certainly would get the business, and accordingly named $8.50. Still the jobber took no interest in the merchandise, and when asked by a third party what he intended to do in the matter he said: "I'll let the two mills fight it out." To the day of the meeting, it was known, he had not bought, and it was predicted that so long as manufacturers cut under the prices of their competitors he would not do so.

Neither the jobber nor the manufacturer wants any disturbance of prices, it was stated by persons who had spent much time in the New York markets. One jobber asking for quotations said to a mill sales manager, "I hope you people are not slashing prices."

"Don't worry about that," said the salesman, "Our mill is closed down and will stay closed until you fellows want goods."

Sentiment in favor of curtailment was very pronounced, and it was stated a number of mills in the Reading district, beginning two days later, would operate only two days—eighteen hours per week.

A few mills in some lines, it was reported by their executives, were running six nine-hour days per week filling orders on their books and taking care of new business. This, however, was the exception. Mills selling the retail trade apparently were doing more business relatively than those selling jobbers, the deduction being that retail shelves are practically bare, while jobbers, for reasons known only to themselves, were determined to hold out for either lower prices or evidence of stability.

The thought injected into the meeting by one manufacturer was that if all were to notify their selling agents and customers that present prices would not be reduced before June 1 there might be some inducement to buy. This found little favor, for the reason that it savored of guaranteeing prices, a plan which, it was stated, had not worked out. It was regarded not feasible for the reason also that some prices already are ruinously low, and that if these were to stand manufacturers who have named prices fair alike to mill and distributor would have to shade them, thus intensifying the mischief which it was sought to undo.

Another suggestion was that all manufacturers announce a reduction of 10 to 15 per cent from the prices prevailing at the time hostilities in France ceased. Such reductions already had been made, according to another speaker, who submitted figures as to several lines of hosiery, on one of which the war price of $2.25 has been cut to $1.75, while on another there has been a drop from $1.75 to $1.50, as low as $1.25 being quoted in some instances, without interesting buyers.

While some of the speakers were talking in favor of substantial reductions from war prices, an underwear mill executive stated that in the last three weeks he had sold goods at the highest price ever obtained for the respective lines. It was brought out very forcibly in the discussions that distributors are buying at prevailing prices anything of which they were in need, and were not interested at the moment in buying for anticipated requirements, seemingly preferring to operate on a hand-to-mouth basis.

It was the idea of one underwear manufacturer that the better way to stabilize prices was to advance them about 10 per cent over those of one year ago. This, I thought, might compensate for the increased pay to mill operatives and other additions to costs, after allowing for the lower prices at which yarns may be bought.

Antagonizing the proposal for having manufacturers announce that present prices are to continue to June 1, a mill executive suggested that in the event of further declines in cotton and yarns, merchants who buy on such a representation might come back for revisions, with cancellations if they were not allowed.

No one doubted that the year would witness heavy buying of all lines of knit goods. One speaker said, "We probably will not sell as much as we did last year, yet by ascertaining our costs and naming prices accordingly and adhering to them we will be able to close the year with a fair profit."

In contemplating the future, manufacturers looked through long-range glasses into the field of export trade. Some of the foreign houses still are taking in merchandise at war figures, there being few cancellations, according to the executive of a mill selling the retail trade, while a few have goods on order at prices well below the war peak. Necessarily, it was stated, buyers abroad are reluctant to make extensive commitments at this time, particularly so long as there are intimations of price reductions.

A mill selling the retail trade in foreign capitals reported that following the armistice not more than one per cent of its orders had been cancelled, some of them under a misapprehension, and that so many of the cancellations had been recalled that the orders which are not to be completed are negligible.

In connection with the outlook for a strong export demand, a manufacturer said: "I do not believe the public will stand for an eight-hour day with ten hours pay, and I very much fear that if it were to be established we would be seriously handicapped in meeting the wishes of those who want our products for export."

A recent letter of Marshall, Field & Company's buyer for the concern's eastern division was quoted, to the effect that "1919 will prove to be one of the big years in the distribution of hosiery and underwear."

With this as a text a speaker said, "If the jobber does not want to buy at this time the thing to do is let him alone. The situation is one that eventually will work itself out to the satisfaction of the trade generally. I recall that at the conference of manufacturers and jobbers in New York on January 17 the buyer for a very large house said that if manufacturers got together and established prices and guaranteed them against reductions, the trade would buy. That man left New York the same night for his western home without having bought a dollar's worth, and so far as I can ascertain he has not been in the market since. Perhaps the fault lies with the manufacturers in not having stabilized prices. We can work toward that by letting the jobber alone and for the present shutting off production."

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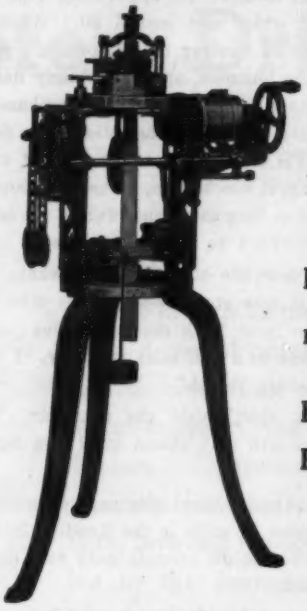

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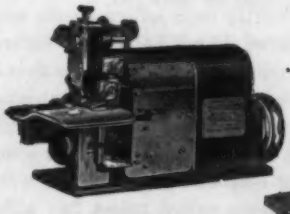

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This speaker, it was apparent, echoed the prevailing sentiment of the meeting. Some of the New York mills, it was announced, had withdrawn their lines, after having had it made plain that price reductions had caused more harm than good, as admitted by some of the jobbers. It was the common belief that merchandise bought later will cost the distributors more than if purchases had been made at prices which prevailed during January.

As was pointed out, operating mills on part time or closing down altogether is increasing the overhead at a rate not contemplated by manufacturers who have not studied the result of short time work. This added overhead will have to be figured in the ultimate cost and passed along, necessarily. Again, if all mills operate but eight hours a day to conform to the demands of union heads there must be an increase in cost.

A speaker along this line took for illustration a mill making 800 dozens a day of 54 hours. Reducing the working time to 48 hours, he pointed out, there would be one-eighth less production, or 700 dozens a day. "Don't forget," he said, "that when you come to dividing your overhead by seven instead of eight the cost per dozen must be greater. You will not only produce less, but your profit on what you make will be less per dozen than under a 54-hour week."

For the present, the speaker admitted, it would be difficult to figure costs accurately from the standpoint of reasonable production on the basis of equipment.

One speaker, referring to the allegation that manufacturers and jobbers may have had abnormal profits during the height of war demand, said there was no doubt in his mind that if there had been profiteering, labor was not the lesser offender. It was his belief that wages would have to come down gradually—that operatives as well as employers would have to bear their share of the burden of readjustment. "The unions," he said took advantage of war conditions to as great an extent as any factor in production. If there are to be downward revisions those whom the unions affect to represent now must come down as surely as they went up when prices were booming."

A person prominently identified with cotton and yarn interests felt that while profits would have to be squeezed —this applying to employees and employers—planters are expectant of 35 cent cotton, and, he said, I cannot see that yarns can go very much lower. "With northern farmers having a government guarantee of $2.26 a bushel for their wheat," he went on, "I know that planters feel that to be on a parity with the farmers of the North they ought to have 35 cents a pound for cotton."

The fact that during the war price fixing period the cotton planters through organization and their Senators and Representatives in Congress vigorously antagonized every movement for establishing a price for cotton, was not brought out by any of the speakers, several of whom, however, referred to it in an after-discussion.

Southern spinners, it was the prediction of a manufacturer, would put up a united front against the proposed eight-hour day. They hold that at cost of production based on a 54-hour week, knitters are buying practically no yarn, contending prices are exorbitant. Any reduction in the working hours, it was felt, would mean an increase in yarn prices. As the same line of reasoning applies to manufactured goods, it was felt that there ought to be concert of action in opposition to any proposal tending toward higher prices, the North and South standing together for averting lessened buying because of higher prices.

Present low yarn prices were again attributed to the suddenness with which the government terminated contracts, throwing large quantities of yarn on the market at a time when it was apparent there would be a period of retrenchment among distributors of merchandise. With these excess supplies out of the way, it was thought, yarns would become stabilized.

It was contended that on the basis of 40 cents for 10s carded single, yarn could not be manufactured at a reasonable profit, and it was shown in the prices which spinners must pay for spot cotton that the market as to futures is meaningless and usually misleading to those who fail to comprehend the situation.

Speakers on the subject of prices, revisions, selling regulations and the better market that is assured included O. A. Lau, Glorie Underwear Mills; Charles E. Leippe, Reading Knitting Mills; H. D. Leinbach, Wyomissing Knitting Mill; W. R. Wetherhold, Berks Knitting Company; F. S. Weaver, Ephrata Hosiery Mills; Van Court Carwithen, Swift Spinning Mill; D. D. Coldren, Coldren Knitting Mills, Isaac Mossop, Isaac Mossop & Co.; J. B. Lesher, Unrivaled Hosiery Mill.

Aringing address on the brighter side of industry and commerce was made by H. G. Seltzer, Hamburg, Pa., who, when this country entered the war, was compelled to retire as United States consul at Breslau, Germany, where he was afforded opportunity for observing the economies practiced by German manufacturers and their adherence to standards. "I did not believe I would hear anything but optimism in this meeting," he said. "What's the matter? Some of you, because you are not selling as much as you have been, seem to be fearful that business has disappeared. Don't we all know that there is no merchandise in merchants' warehouses? Don't we know too that the only place to get it is at the mill? There is a lull, we will admit, but we have had lulls in the past, and we are here to-day. If we will be but patient a little while longer we will be able to look back on this day and the days that have elapsed since last November and wonder why any of us were scared. But you are headed right now in getting down to a common-sense basis for finding what it costs you to produce goods and striving toward uniformity in box sizes and standard shades and fewer of them. Now establish uniform quality and prices, and the victory will be yours. Pessimism is costly; get rid of it, you with whom it lingers."

The speaker thought it might be a good idea to have the government provide for a clothing administrator, for distribution of clothing among the suffering people of Belgium and other countries where there is distress because of absence of sufficient apparel. At any rate, he said, such a body should be able to very quickly dispose of the war-left-overs and bring to manufacturers orders for hundreds of thousands of dozens of underwear and stockings. His reference to orders of such magnitude was the signal for a smile as broad as the crowded meeting room and recalled to many manufacturers the brighter days of the past and served to draw a picture of the future.

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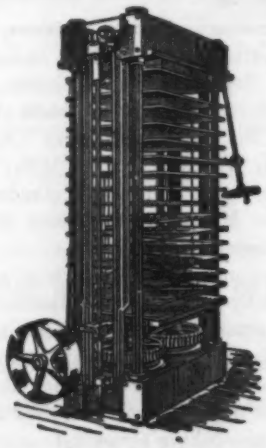

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Manufacturers were reported and recommended for adoption generally by Charles C. Miller of the Regal Hosiery Mills. For half hose in dozen packing a box 13 inches long, three inches high and three and one quarter inches wide was found by the committee having the investigations in charge to be practical in every respect. The finding applies to 200 and 220 needle socks, and it was believed that such goods boxes of the dimensions stated would prove acceptable to all manufacturers and distributors. For half-dozen packing a box one and one-half inches in height was recommended.

The packing used by 13 manufacturers was taken for establishing a basis upon which to report a recommendation. Each of the mills used a box differing in dimensions from that of any other mill. The width of the lid rim varied by one-quarter of an inch, the narrowest being one inch wide and the widest an inch and one-half. It was recommended that the wider rim be adopted as standard, as, it was stated, it would obviate the use of tie strings, effecting a saving of about one dollar per 1000 boxes.

Box makers' prices, it was reported, ranged from $5 to $6. They declined for the present to commit themselves as to a standard price, because of the unsettled condition of the strawboard market. So long as boxes of so many varying dimensions are used, it was represented, box makers had difficulty in figuring their costs accurately. It was their belief that with the adoption of a standard size it would be possible to bring the cost per 1000 down to a minimum.

As another means of bringing operating costs to the lowest possible basis the Berks County Hosiery Manufacturers recommend a radical reduction in the number of shades in dyeing. The matter had been gone into thoroughly, with a view to having manufacturers throughout the United States agree upon a reasonable number of standard shades, no others to be employed.

S. L. Bellemere, of the Neversink Dye Works, Reading, stated to the meeting that his company was being called on for 200 shades of gray alone, some of the shades showing an almost unperceivable variation. Manufacturers, he insisted, ought to confine themselves to a few shades. The wide range at present permitted, he went on, adds to cost of the finished product.

The matter of shades and colors is to be further considered by the manufacturers' committee in conjunction with master dyers, and it is expected a final report will be submitted at a meeting to be held shortly.

Printed cost sheets in blank were submitted for showing the result of the work of a committee of the Berks County Hosiery Manufacturers in efforts to standardize a method for cost ascertainment. Copies were distributed among manufacturers, who are expected to return them to the committee, with figures covering every item in the cost of manufacture and preparation of merchandise for delivery. It is designed that manufacturers whose estimates appear to the committee as not fairly representing their costs will have pointed out to them their seeming errors in any of the several items. After a sufficient number of such reports on any given line of hosiery have been received, the committee is expected to analyze them and prepare a sheet of costs based on the best information thus obtained, for enabling manufacturers to figure costs as wages and prices of raw materials fluctuate. The cost sheet presented at the meeting is adapted to hosiery only. It is the intention to shortly prepare a form for underwear.

In its investigations to date the committee obtained the costs in 20 mills making 220 needle goods—half hose and ladies'. Between the high and low figures of the 20 mills there was a range of 15 cents per dozen on a given line, the cost of which was found to be $1.90, which is more than some few jobbers are getting for the line. It was the deduction that either the jobbers had acquired the goods at less than cost or were selling at a sacrifice to themselves. One manufacturer who was found by the committee to be quoting a ridiculously low price was requested to submit a cost sheet. He refused to open his method of reckoning to the group, which now is conducting an inquiry for definitely settling the question whether this manufacturer is operating at no profit or the group committee is wrong in its findings.

In an address on the importance of knowing the cost and reducing it where possible, Mr. Leippe said in par "Jobbers demand lower prices; some are alleged to have threatened to break the market. That cannot be done if we know the cost of what we make, put on it a fair price and stick to that price. But we must know the cost, otherwise we cannot intelligently name a price to which to adhere. We cannot reduce the cost of labor," Mr. Leippe said. "Therefore if we are to go to the jobbers with lower prices we must find out whether it will be possible to get a lower cost of operation. If we can, we must give them the benefit. If we cannot, we should not cut under our prices of to-day. All of us will benefit by a standard method of cost finding, and I hope, therefore there will be good use of the sheets which have been distributed here."

Going into the matter of standard shades and box sizes, Mr. Leippe said the proposed reforms would work a saving which could be given to the jobber, to be passed along down the line to the consumer. "Many of us," he continued, "do not know why we use this or that shade, nor can we account for the great number. There has been too much waste in the indiscriminate use of colors and shades and wide variations in box dimensions. We want a minimum, for getting rid of the waste, and putting prices down to the lowest level consistent with operating costs as shown by the sheets which we ask you to fill and return to your group committee."

One disadvantage of having such a profusion of shades, suggested Mr. Lesher, is the confusion which is unavoidable in the dyehouse, which in returning the dyed goods frequently sends a variety of shades in a single lot, thus affording captious distributors opportunity for rejecting goods on the ground that the coloring is not uniform.

It was the general opinion that if jobbers will co-operate in the matter of standard shades, few in number, and uniform box dimensions they can be accommodated in their demand that prices be reduced, and the suggestion was offered that they buy rider tickets and printed matter for packing in very large quantity, in order that mills may draw just so much as would be necessary in the filling of an order. There would accumulate less dead stock of printed matter and be fewer delays in the completion of orders.

Problems of Waste in Knitting Mills

BY WILLIAM DAVIS, M.A.

The cut-up branch of the hosiery trade and the full fashioned branch are the two best known sections of this industry. The wrought branch includes all articles which are made in more or less circular form ready to wear and the best known members of which are the hose and half hose sections where by reason of the narrow widths of the articles they can be produced on machines of small diameter ready to fit that part of the body for which they are intended. The cut and full fashioned branches of the business however are at once an indication of the application of knitted fabric to every imaginable form of wearing apparel. The two branches of the knitting industry have often been compared and their respective advantages and disadvantages outlined to the point of familiarity, but it might be well advised to re-examine the subject once again in the light of altered conditions in regard to waste.

The American knit goods manufacturer may be truthfully recognized as the most powerful exponents of the cut-up branch of the business, as their machine builders have been the means of devising vastly improved machines for the various operations. In these we have only to mention the important American machines for making circular webbing for this class of trade where output and production has been brought to a high-water level. The processes of cutting-out the fabric into its required shape have been greatly accelerated by the various electric cutters in use and which have now been firmly established in Great Britian, America doing a lively export trade in these very useful pieces of mechanism.

The Problem of Waste.

Most of our manufacturers are giving greater attention to the problem of waste in our knitting factories, important at any time but doubly so at present owing to the largely increased cost of yarns and raw materials generally. In the cut branch of the trade the shapes are excised to standard patterns and it is a skilful cutter indeed who can contrive to eat her way through the rolls of webbing without incurring a considerable amount of waste in the process. This waste is intrinsically valuable and cutters exercise the greatest caution to arrange the various parts of the garments they are dealing with, so that one part may be carved out of the surplus fabric left from another part. We have seen operators who pushed gayly through the stuff cutting in great style but in passing they abandoned great slices of the most valuable material to the waste department. Such an operator may be speedy but the manager thinks, "A little more brains please, this waste is making you a very expensive operative and a large part of my profit is being consigned to the waste bag."

In passing through any knitting factory we have many indications of great waste incurred in various processes and one of the most glaring is perhaps that of winding. I have just inspected one such department where a youth was joining two ends of a yarn together drawing out long ends of the two threads, finally got them joined biting off considerable lengths of extra yarn with his teeth to trim the knot. One of the first stages in the education of the new hand at the works is to train him to an understanding of the value of the materials he is handling. Unless an idea of the fitness of things and the avoidance of useless waste can be firmly implanted in the learner he will prove a bad investment all along the line. If the efforts to teach him discretion should prove unavailing, the manager is well advised to part with his services.

It often happens that a mill owner has a special aversion to the sight of waste and shows it on every possible opportunity. The sight of clean frames makes him pleased and he often runs to the opposite extreme of eschewing all waste. Now there is a danger in this direction also should the frames and winding machines show themselves clear of waste this is in itself suspicious because this clearance may be effected from motives of fear and it simply means that the waste is being secreted or smuggled out of the factory. The writer knew of such a case where the manufacturer showed such an antipathy to waste that the operatives were positively scared to have any waste of any kind about the machine. It was smuggled into pockets and secret receptacles and the owner of the mill was thus deprived of the income to be derived from legitimate and unavoidable waste. In this case astounding revelations were made when an unoccupied section of the works came to be overhauled, large quantities of rotted waste were found deposited amongst the rafters of the roof and had conglomerated for some years.

In other cases operatives suffering from "waste fright" secreted such waste about their clothing or sent it down the town sewage. The manufacturer or overseer therefore should have sufficient penetration to thwart such tricks and should make certain that there is no unexplained discrepancy between the weight of yarn handed out and the weight of goods delivered.

Following the Waste.

The writer was in conversation with the manager of one of the largest knitting concerns in the country, recently, and from his lips heard a simple plan which he had found to be most effective. So impressed was he with the importance of tracking the waste made by any machine that he determined to give the whole matter his own personal attention. In most fabrics a frameworker deposits his or her waste into a common receptacle, when it is possible to check the waste made by the department as a whole, but where one cannot detect the wasteful worker and the one who gets along with the minimum possible. By this method also the worker feels no direct responsibility nor is there any incentive to reduce the amount of waste made by him personally. The manager referred to has a receptacle placed at each machine and this waste is carefully weighed and recorded by him for each week. He knows the weight of yarn supplied to the frame, the weight of goods obtained and has also an accurate return of the exact amount of waste incurred by all frames in the course of a week.

These results are recorded in a graph over a number of weeks, the average waste compared for each frame in the department and they show at a glance the character of any

worker in regard to the making of waste. In this case he has found it in the interests of profitable production to dismiss any who continue to employ wasteful methods of working, and who after due warning fail to affect an appreciable improvement.

The strong point of this method is that it brings a definite responsibility to the individual worker and he feels an obligation to reduce the waste as much as possible. At the same time if the waste made is hidden or disposed of in any secret fashion, this can also be detected.

This method works all right when the goods manufactured are of identical material but should the trade be in any way mixed in regard to materials used, then the waste should be sorted by the worker and the lots presented according to the nature of the material. Of these divisions the chief will be the bins for woolen waste, cotton waste and silk and this entails a receptacle at the side of the frame having three divisions, one for each kind. It is a commonplace that the value of waste is reduced considerably if it is in mixed lots from various materials owing to the necessity for the waste puller to sort the different lots for himself, an operation which is very expensive for him as he has to deal with each small lot individually. The best method is to sort the lots at the fountain head where the waste is made and in this way the manufacturer obtains much more for his waste; because next to avoiding waste to the fullest possible extent, it is a wise policy to see that unavoidable waste is disposed of under the best market conditions. Of late the value of all kinds of mill waste has greatly appreciated and the subject is more than ever worthy of attention. Materials which used to be had for the lifting can now command an important price which makes it worth while to have the question of waste under very full control.

Most knit goods manufacturers are fully alive to the importance of securing the bulk of their yarns ready wound on bobbins of suitable size to place on the knitting machines straight away. It pays them to have this done even if they have to give more per pound for the yarn to cover expense of winding prior to delivery. One difficulty is here evident from the point of view of the spinner which is that he often supplies yarns to various branches of the textile industry and the method of winding suitable for the weaving section of the trade is not necessarily suited for the knitting branch. In general the knitting branch requires its yarns wound on to much larger bobbins for a frame has open accomodation for a very large package which ensures that a thread enjoys a long run on the machine without breakage. In weaving the packages for similar yarns have as a rule to be much smaller as they have to traverse the lay or going part of the loom, or revolve in the creel of the warping machine. In both those cases it is essential that there should be a clearly defined limit in regard to the size and weight of the yarn package. In the knitting industry restrictions on the size are not so severe, because it is all to the advantage of the manufacturer to have as long a run of any thread as is possible. If the knitting is done from small packages frequent changes are necessary and piecing up of ends but what is perhaps more important is that small packages envolve the constant variation of tension in the thread, there is generally an appreciable distinction between the tension of a thread when it is emptying than when it is filled to the tip, all of which variations are apt to be reflected in the character of loop-formation and incidentally in the market value of the fabric. If the trade of a spinner is wholly in knitting yarns, he will be able to pack the yarn in a way which will meet the needs of the knitting manufacturer in particular and the latter does well to consider this advantage when making his choice of a spinner.

An expert frame mechanic is worth his weight in gold and the manufacturer, unless he be in a very small way, does well to secure the service of such an officer for his knitting establishment. In this item the small man is at a great disadvantage as compared with the large manufacturer because, not being able to retain the services of a mechanic, he has to let out his jobs to a visiting mechanic with proportionately larger charges. But this is not really the most important advantage, for the duties of a frame mechanic as such far transcends that of merely mending the break-down of a frame. He has to act as a preventive of breakdowns by anticipating causes of trouble and one of his most important duties is to examine all frames and have them trued-up in regard to their needle and sinker adjustment. In this respect care of needles is the chief item because the majority of spoiled fabrics on the machine are due to defective needles. They should be scrutinized frequently to detect any bent latches on latch needles and any weak springs on spring needles. Even one such needle in a machine may be the cause of many pounds of waste in a single day, this waste being incurred in the fabric either in a way which requires great expense of repairing or by restricting the activities of the cutter who has to steer clear of such pieces as are too badly holed to attempt repair. Such portions do not always oblige by occuring at the tail-end of a set of garments and consequently a larger waste is often incurred than is covered by the defect itself.

The least catch on the bobbin will cause it to snap the thread and cause more waste. The latest circular knitting machines have various forms of stop motion which usually prevent the press-off of the fabric by stopping the machine before the yarn is spent, but frequent standing of the frame to repair defects in yarn or join up broken threads is the greatest waste of all, namely valuable production.

War Equipment Problems.

With the cessation of hostilities peculiar problems are confronting the manufacturer who has for some time been engaged in making knitted equipment for the military forces. These goods vary greatly in their properties but all have one property in common, namely that they are of very robust structure, constructed from thick yarns of stout fibre and worked on the machine to the utmost tightness of setting. To manufacture goods of this class places a great strain on the stitch-forming parts of any frame, this being notably the case with the needles and sinkers and thread carriers. The military knitted fabrics have put a considerable wear and tear on the needles which, not being made from the same strong materials as formerly but often from metal much too soft, has given rise to a largely increased expenditure under this head. The manufacturer has demanded more needles at a time when there were few to spare.

Now that military contracts are coming to a close or

have already done so, it behooves the manufacturer to take stock of his position and in many cases he will be disposed to make a claim on the contracts' department for an extra allowance in respect of the greater wear and tear when working these strong character goods. Practically all frames which have been so employed will require to be most thoroughly overhauled before they can be diverted to the production of goods for civilian wear. Large numbers of the sinkers are completely worn down with prominent grooves, which may produce passable fabric in thick stout gauges where the closeness of stitch obscures the deficiencies to a large extent, but when we come to make the fine gauge civilian garments light in weight and open in sett, we shall require to replace all defective and worn sinkers by new ones.

The needles too have been badly bruised by this strong work and many of them will require to be totally replaced. In many cases the new needles obtainable were not primarily intended for that particular gauge of frame but in a time of stress and difficulty slight variations in thickness have been overlooked which will develop grave defects when we come to make civilian garments once more. Indeed in many factories the staff and workers have fallen into rather careless methods of work, goods are passed because they are in great demand but which will not meet with favor when scrutinized by the expert eye of the critical buyer when he may soon have several avenues of supply again open to him and will naturally select those which are most up to his ideas of perfection.

In regard to the estimating of profits, the manufacturer would do well to take into careful account the greater degree of wear and tear which has been incurred by his frames being on military fabrics and, if he is unable to claim government allowance under this head he should in the next year or so lay aside a larger reserve under "depreciation" of his plant. A machine written down on a 20 years depreciation under normal civilian conditions of trade will require to have an allowance of a 10-year's depreciation under the more strenuous conditions of military equipment manufacture. The frame requires increased power to drive and the strain on the cams and levers is such as to wear them out in half the time.

Invisible Waste.

This term is used in some districts to denote the percentage of material which seem to go missing during the manufacturing operations, and for which loss it is difficult to account. We supply yarn to the frame worker to make a certain number of dozens of goods and there is often a discrepancy between the goods delivered and the weight of yarn supplied. In some cases this is due to the loss of weight for moisture which the yarn undergoes in entering the factory. The yarn is delivered with a certain percentage of moisture and in cases of doubt is sold on a certificate from a conditioning house. Now this percentage of moisture is determined in an average temperature certainly not to the warm side. The yarn is then shipped to the factory and placed in the yarn store when the weight is found correct on delivery. The yarn when handed to the frame worker may be of the correct weight. The difference is often noticeable, particularly in the case of woolen yarns, when the goods are weighed-in and a discrepancy is often found.

Now this loss may be explained by the fact that it is customary for knitting factories to be heated more than almost any other type of textile organization, particularly the department where the knitting machines are installed. For a shed of Cotton's Patent frames, it is absolutely necessary to have the temperature quite warm for even when the heat is allowed to go down at the week-end, the workers experience considerable difficulty in restarting their machines, because the frost and cold have caused the various metal parts to contract and has thus placed them slightly out of adjustment. This can be well understood when we recollect that cams, sinkers, etc., have to be adjusted to within a hundredth part of an inch. If the steam is allowed to go down at the week-end it should be again raised on the Sunday evening preparatory to a resumption of work on Monday morning during the coldest of the winter months. The same applies to the finishing departments equipped with sewing, seaming and stitching machines, which are all delicate of adjustment and liable to get out of working order if allowed to cool down permanently.

A New Catalogue.

The Graton & Knight Mfg. Co. of Worcester, Mass., oak leather tanners and belt makers, have gotten out a very finely illustrated catalog in two colors showing the different processes of belt-making from the receiving of the hide right through to the finished belt.

This catalog consists of 124 pages and cover, besides a special three-page insert of their factory. It not only illustrates and describes the different products made by Graton & Knight but shows what can be accomplished with unsurpassed facilities for the manufacture of high grade leather belting and leather specialties. The belting section fully explains the characteristic qualities, the particular differences and the capabilities of their different brands of belting. It also embodies mechanical rules, tables and other information which should be of value in determining the most efficient belt for any drive or in assisting with other transmission problems.

Graton & Knight are the manufacturers of the standardized series leather belts which they have advertised extensively in the national and trade field. Besides belting they also make cup packings, pump leathers, automobile leathers, blanket straps, trunk and suitcase straps, trunk handles, halters and other leather products such as insoles, outsoles, counters, box toes and good year welting for the manufacture of shoes.

The Graton & Knight Mfg. Co. will gladly furnish anyone interested with a copy of this catalog.

The Lowe Brothers Company, manufacturers of paints and varnishes, with factories at Dayton, Ohio, and Toronto, Canada, has established an office and warehouse at 93-95 Peters Street, Atlanta, Ga., in order to take care of the very large and increasing trade in their goods in this section. Thomas B. Boatright is district manager in charge of this territory, and R. J. Mills is assistant district manager.

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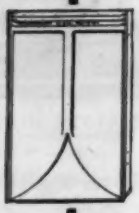

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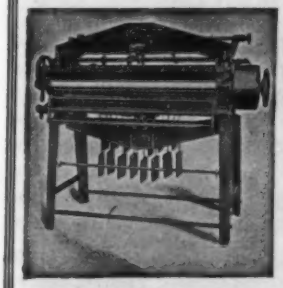

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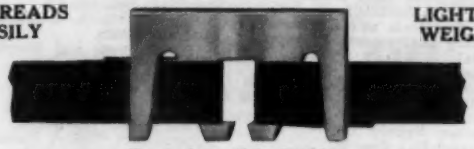

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BE SURE TO ORDER ACME COLD ROLLER BALING TIES. Smooth round edges, lacquered to prevent rust. Because of their light weight you get more to the pound.

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KEYSTONE STEEL CLAD CARS

Fibre and steel body, studded with rivets (heads inside)—smooth finish.

Tilting construction, self-oiling wheels.

All cars made to suit your special requirements. Send for catalog.

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KEYSTONE FIBRE COMPANY

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SMITH & FURBUSH

MACHINE CO.

PHILADELPHIA, PENNA.

Specialists in machinery for working all kinds of Waste Products. Complete equipment for coarse yarns, etc., from waste. Shoddy, Felting and Woolen machinery.

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Send for Circular S82.

This machine is used for shredding or hackling out Gunny and Burlap bagging.

It is used as a part of our outfit for the manufacture of gunny sacking from scrap bagging.

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Westinghouse Elec. & Mfg. Co.
Contractors (Building).
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Controlling Instruments (Temperature).
Tagliabue Mfg. Co., C. J.
Taylor Instrument Co.
Conveying Machinery.
American Pulley Co.
American Supply Co.
Carpenter Co., Geo. B.
Collins, J. D.
Cresson-Morris Co.
Hunt Co., C. W.
Link-Belt Co.
Morse Chain Co.
Phila. Drying Machinery Co.
Phila. Textile Machy. Co.
Saco-Lowell Shops.
Schofield, Wm. Co.
Seeger-Walraven Co.
Smith & Furbush Machine Co.
Coolers.
(See Humidifying Apparatus.)
Coolers (Water).
(See Water Coolers).
Cooling Towers.
Smith & Furbush Mach. Co.
(See Tanks and Towers.)
Copper Stamps and Stencils.
(See Stamps, Stencils, Etc.)
Cordage Machinery.
Saco-Lowell Shops.
Smith & Furbush Mach. Co.
Textile Finishing Machinery Co., The
Whitin Machine Works.
Cotton Cloth Commission Merchants and Dealers.
Carver-Beaver Yarn Co., Inc.
Fawcett, Hughes.
Southern Cotton Yarn Co.
Taylor, Clapp & Beall.
Weimar Bros.
Woodward, Baldwin & Co.
Cotton Dealers and Brokers.
(See Brokers.)
Cotton Mill Machinery.
Barber-Colman Co.
Butterworth & Sons, H. W.
Carpenter Co., Geo. B.
Cocker Mch. & Foundry Co.
Crompton & Knowles Loom Wks.
Delahunty Dyeing Machine Co.
Draper Corporation.
Firsching, J. A.
Fletcher Works.
Howard & Bullough.
Phila. Drying Mchy. Co.
Phila. Textile Machy. Co.
Sargent's Sons, Corp., C. G.
Saco-Lowell Shops.
Schaum & Uhlinger.
Schofield Co., Wm.
Smith & Furbush Mach. Co.
Stafford Co.
Textile Finishing Machinery Co.
Whitin Machine Works.
Whitinsville Spinning Ring Co.
Cotton Tape Loom.
Fletcher Works.
Schaum & Uhlinger.
Cotton Yarn Mills.
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Coupling (Rope).
Hunt Co., C. W.
Counters (Revolution, Hank, Pick, Etc.).
Veeder Mfg. Co.
Cranes (Locomotive).
Link-Belt Company.
Crayons.
American Crayon Co.
Dixon Crucible Co., Jos.
Crushing Machinery.
Allis-Chalmers Mfg. Co.
Cutters (Cloth).
(See Cloth Cutters.)
Cutters (Thread).
(See Thread Cutters.)
Dictaphones.
Columbia Graphophone Co.
Dies (Steel).
(See Stamps, Stencils, etc.)
Disinfectants.
Barrett Co., The
Dobby Chains.
Crompton & Knowles Loom Wks.
Whitin Machine Works.
Doffing Boxes (Mill).
(See Boxes—Mill.)
Door Mats (Steel).
Acme Steel Goods Co.
Tagliabue Mfg. Co., C. J.
Draft Gauges and Thermometers.
Taylor Instrument Co.
Drawing Frames.
Howard & Bullough.
Saco-Lowell Shops.
Drills (Electric).
(See Electric Machinery.)
Drinking Fountains.
(See Fountains—Drinking.)
Dust Collectors.
(See Blowers and Blowing Systems.)
Dusting Machinery.
Schofield Co., Wm.
Smith & Furbush Mach. Co.
Drying Forms (Hosiery).
Paramount Hosiery Form Drying Co.
Pearson, Jos. T.
Dyers, Bleachers and Finishers.
Home Bleach & Dye Works.
Drying Machinery.
American Laundry Mchry. Co.
Butterworth, H. W. & Sons Co.
Cocker Mch. & Foundry Co.
Sargent's Sons Corp., C. G.
Textile Finishing Machinery Co., The
Dyeing, Bleaching, Finishing and Printing Machinery.
American Laundry Mchry. Co.
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Cocker Mch. & Foundry Co.
Delahunty Dyeing Machine Co.
Electro Bleaching Gas Co.
Firsching, J. A.
Fletcher Works.
Phila. Drying Machinery Co.
Phila. Textile Machy Co.
Reliance Machine Works.
Schaum & Uhlinger.
Textile Finishing Machinery Co., The
Tolhurst Machine Works.
Dye Sticks.
Phila. Drying Machinery Co.
Dyestuffs and Chemicals.
Arabol Mfg. Co.
Atlantic Dyestuff Co.
Barrett Co.
Bosson & Lane.
Dicks, David Co., Inc.
Douglas Co.
Du Pont de Nemours & Co., E. I.
Electro Bleaching Gas Co.
Grasselli Chemical Co.
Hemingway, Inc., Frank
Holland Aniline Co.
Kali Mfg. Co.
Klipstein & Co., A.
Levinstein & Co., Inc.
Lewis, John D.
Metz & Co., H. A.
National Aniline & Chemcial Co.
Newbert Color Co.
Newport Chemical Works, Inc.
Roessler & Hasslacher Chemical Co.
Seydel Mfg. Co.
Sherwin-Williams Co.
Sonneborn Sons, Inc., L.
United Chemical Products Corp.
Wolf & Co., Jacques.
Zavon, Inc.
Electric Dynamos and Motors.
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Electric Fans.
(See Fans—Electric.)
Electric Lamps.
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Electric Lamp Guards.
Flexible Steel Lacing Co.
Electric Pipe and Leak Locating Machines.
Darley & Co., W. S.
Electrical Machinery and Supplies.
Allis-Chalmers Mfg. Co.
Carpenter Co., Geo. B.
Carter Electric Co.
Chicago Fuse Mfg. Co.
Economy Fuse & Mfg. Co.
Federal Sign System (Electric)
General Electric Co.
Seeger-Walraven Co.
Snow & Co., E. W.
Walsh & Weidner Boiler Co.
Western Electric Co.
Westinghouse Electric & Mfg. Co.
Electric Signs.
Federal Sign System (Electric).
Electric Sirens.
Federal Sign System (Electric).
Electric Tractors and Trucks.
Cowan Truck Co.
Elwell-Parker Elec. Co.
Hunt Co., C. W.
Elevators.
Collins J. D.
Hunt Co., C. W.
Link-Belt Company.
Seeger-Walraven Co.
Enamel—Mill White.
(See Paint—Mill White.)
Engineers (Mill).
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Engines—Oil, Gas and Gasoline.
Carpenter Co., Geo. B.
Seeger-Walraven Co.
Engines—Steam.
Allis-Chalmers Mfg. Co.
Carpenter Co., Geo. B.
Collins, J. D.
Lombard Iron Works & Supply Co.
Schofield's Sons Co., J. S.
Seeger-Walraven Co.
Toomey, Frank
Walsh & Weidner Boiler Co.
Engine Appliances—Oil and Steam.
Carpenter Co., Geo. B.
Lunkenheimer Co.
Engine Room Supplies.
Carpenter Co., Geo. B.
Goodyear Tire & Rubber Co.
Lunkenheimer Co.
Graton & Knight Mfg. Co.
Extractors—Hydro.
American Laundry Mchry Co.
Fletcher Works.
Schaum & Uhlinger.
Tolhurst Machine Works.
Fans—Electric.
Allis-Chalmers Mfg. Co.
Carter Electric Co.
General Electric Co.
Howard & Morse
Western Electric Co.
Westinghouse Elec. & Mfg. Co.
Fans—Conveying, Power and Exhaust.
(See Blowers and Blowing Systems.)
Feed Water Purifiers.
(See Water Softeners.)
Felting Machinery.
Smith & Furbush Mach. Co.
Fence—Steel and Iron.
Anchor Post Iron Works.
Cyclone Fence Co.
Page Steel & Wire Co.
Fibre Products.
Fibre Specialty Mfg. Co.
Keystone Fibre Co.
Lane & Bro., W. T.
Leatheroid Sales Co.
Macrodi Fibre Co.
Rogers Fibre Co.
Standard Fibre Co.
Filters—Water.
(See Water Softening.)
Finishing.
(See Dyers, Bleachers and Finishers.)
Finishing and Sizing Materials.
Arabol Mfg. Co.
Atlantic Dyestuff Co.
Bosson & Lane.
Corn Products Refining Co.
Dicks, David Co., Inc.
Douglas Co.
Du Pont de Nemours & Co., E. I.
Electric Smelting & Alum. Co.
Grasselli Chemical Co.
Hemingway, Inc., Frank
Kali Mfg. Co.
Klipstein & Co., A.
Levinstein & Co., Inc.
Newport Chemical Works, Inc.
Metz & Co., H. A.
Newbert Color Co.
National Aniline & Chemical Co.
Roessler & Hasslacher Chemical Co.
Seydel Mfg. Co.
Sherwin-Williams Co.
Sonneborn Sons, Inc., L.
United Chemical Products Corp.
Warren Soap Mfg. Co.
Wolf & Co., Jacques
Zavon, Inc.
Fire Escapes (Spiral).
Collins, J. D.
Fire Hose.
(See Hose—Fire.)
Fire Protecting Paint.
(See Paint—Fireproof.)
First Aid Room Equipment.
(See Hospital Equipment.)
Flooring (Hardwood).
Nashville Hardwood Flooring Co.
Fluted Rolls.
Howard & Bullough.
Saco-Lowell Shops.
Schofield's Sons Co., J. S.
Smith & Furbush Machine Co.
Southern Spindle & Flyer Co.
Whitin Machine Works.
Flyers.
Howard & Bullough.
Saco-Lowell Shops.
Southern Spindle & Flyer Co.
Fountains (Drinking).
Puro Sanitary Drinking Fountain Co.
Friction Clutches.
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Fuses.
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Garnett Machines.
Smith & Furbush Mach. Co.
Gas Engines.
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Gaskets.
Diamond State Fibre Co.
Goodyear Tire & Rubber Co.
Graton & Knight Mfg. Co.
Gauge Cocks.
Lunkenheimer Co.
Gauges—Draft.
Taylor Instrument Co.
Gauges—Mercury Column Vacuum
Taylor Instrument Co.
Gauges—Oil.
Lunkenheimer Co.
Gauges—Water.
Lunkenheimer Co.
Gears—Silent.
Diamond State Fibre Co.
General Electric Co.
Link-Belt Co.
Morse Chain Co.
Gear Cutters.
Cresson-Morris Co.
Whiton Mch. Co., D. E.
Gear Pullers.
Greb Co., Inc.
Generators—Electric.
(See Motors and Generators.)
Graphite—Products.
Dixon Crucible Co., Jos.
Grates—Shaking.
Collins, J. D.
Lombard Fdy. & Mch. Co.
Grease.
(See Lubricants.)
Grease Cups.
(See Lubricators.)
Grinders—Card, Cylinder Roll, Napper and Garnett.
(See Card Grinding Machinery.)
Guards (Elec. Lamp.
Flexible Steel Lacing Co.
Guides (Thread).
Mitchell-Bissell Co.
Palmer Co., I. E
Gums.
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Hangers.
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Hardwood.
Nashville Hardwood Flooring Co.
Harness—Loom.
American Supply Co.
Crompton & Knowles Loom Wks.
Emmons Loom Harness Co.
Garland Mfg. Co.
Electro Bleaching Gas. Co.
Whitin Machine Works.
Heating and Ventilating Apparatus.
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Heddles.
Crompton & Knowles Loom Wks.
Draper Corporation.
Whitin Machine Works.
Heddle Frames.
Crompton & Knowles Loom Wks.
Whitin Machine Works.
Hoists.
Link-Belt Company.
Morse Chain Co.
Seeger-Walraven Co.
Hose—Fire.
Goodyear Tire & Rubber Co.
Hosiery Finishing Boards.
(See Boards.)
Hosiery Forms.
(See Drying Forms.)
Hosiery Yarns.
(See Yarn Manufacturers.)
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Thomas Co., F. H.
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Sinton.
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The Largest Manufacturers of Loom Harness and Reeds in America.

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COTTON HARNESS for all kinds of plain and Fancy Weaves in Cotton and Silk Goods.

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Slasher and Striking Combs, Warper and Leice Reeds, Beamer and Dresser Hecks, Mending Eyes, Jacquard Heddles.

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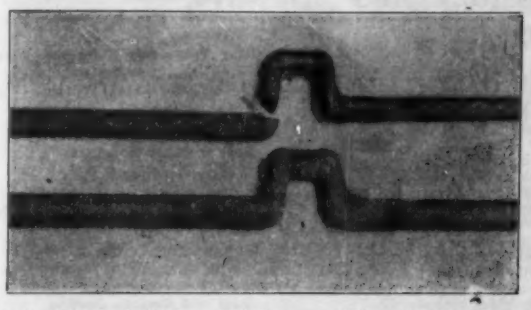


It Is the Little Things That Count.

In one of the prominent cotton mills of the South, the saving effected by B-W Welding Apparatus as shown by the cost sheet covering a period of one year were as follows:

Department	Value of Parts if Purchased New	Total Cost of Welding, including Supplies, Labor, etc.	Actual Saving Over New Parts
Weaving Room	$1,835.42	$864.33	$971.10
Card and Waste Room	305.35		
Spinning and Spooling Room	99.80		
Slashing Dept.	53.73	576.22	495.58
Cloth Room	45.18		
Machine Shop	562.50		
Miscellaneous	62.25		
TOTAL	$2,907.23	$1,440.55	$1,466.68

Why not prepare NOW for those inevitable breaks that are bound to occur in your mill. Why not affect such savings as this in your mill by installing a

B-W Welding and Cutting Machine

We not only supply the machine, oxygen and supplies, but we send experts to your plant to teach your mechanic how to use it.

B-W SERVICE

means that if you have a breakdown too large for your own mechanic, our experts are always ready to come to you.

Write today for catalog and price list.

BIRD-WILCOX COMPANY, Inc.

Oxygen, Oxy-Acetylene Welding and Cutting Machines and Supplies.

Atlanta, Ga. Savannah, Ga. Chattanooga, Tenn.
Charlotte, N. C. Gretna, La.

It Paid This Mill to "PURO-fy"

A constant supply of pure drinking water was not considered an expense, but an investment which would pay dividends in better health of employes, contentment, and the resulting increased efficiency, more production and steadier workmen.

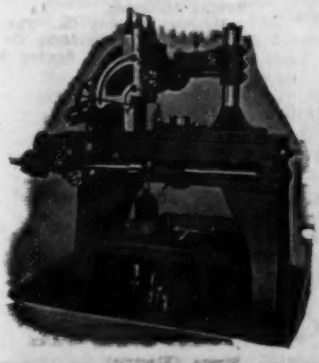
Many other mills have found them a paying investment, and we would like to tell you more details if you will ask for them of the Puro Sanitary Drinking Fountain Co., Haydenville, Mass., or the Southern Agent, Mr. E. S. Player, Masonic Bldg., Greenville, S. C.

PURO SANITARY Drinking Fountain

Full Automatic, Semi-Automatic and Hand Operated

Gear Cutting Machines

Especially adapted for use in Cotton Mills Hundreds now in use. Send for Special Circulars.



The D. E. Whiton Machine Co.,

NEW LONDON, CONN.

BUYERS' INDEX—Continued.

Humidifying Apparatus.
Carrier Eng. Corp.
New York Blower Co.
Parks-Cramer Co.
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Hydro Extractors.
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Hydrometers.
Taylor Instrument Co.

Hygrometers.
Taylor Instrument Co.

Hygrodeiks.
Taylor Instrument Co.

Indicating and Recording Instruments.
Taylor Instrument Co.
Tagliabue Mfg. Co., C. J.

Indigo.
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Injectors.
Lunkenheimer Co.

Ink—Stencil and Marking.
Atlanta Stamp & Stencil Wks.
Bradley Mfg. Co., A. J.

Iron Work—Ornamental.
Anchor Post Iron Works.
Cyclone Fence Co.
Dow Wire & Iron Works.
Dufur & Co.
Howard & Morse.
Page Steel & Wire Co.

Jacquards.
Crompton & Knowles Loom Wks.

Jute Bagging Machines.
Smith & Furbush Mach. Co.

Kettles—Size.
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Kettles—Soda.
Lombard Iron Works & Sup. Co.

Kiers.
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Knit Goods.
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Knit Goods Washers.
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Knitting Machinery.
Bear Knitting Mach. Works.
Brinton Co., H.
General Machine Works.
Hemphill Mfg. Co.
Nye & Tredick Co.
Scott & Williams.
Smith & Furbush Mach. Co.
Wildman Mfg. Co.
Whitin Machine Works.

Lamps—Incandescent and Arc.
Boston Economy Lamp Div.
Carter Electric Co.
General Elec. Co.
Western Electric Co.
Westinghouse Lamp Co.

Lamp Guards (Key Locking).
Flexible Steel Lacing Co.

Lamp Reflectors.
Ivanhoe-Regent Works.

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Saco-Lowell Shops.
Smith & Furbush Mach. Co.

Laundry Machinery.
American Laundry Mchry Co.
Fletcher Works.
Schaum & Uhlinger.
Tolhurst Machine Works.

Leak and Pipe Finder (Electric Wireless).
Darley & Co., W. S.

Leather Belting.
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Leather Specialties.
American Supply Co.
Graton & Knight Mfg. Co.
Ladew & Co., Inc., Edw. R.
Williams & Sons, I. B.

Linen Yarns.
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Link Belting.
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Liquid Chlorine.
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Loaders—Wagon and Trucks.
Link-Belt Company.

Logwood Extract.
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Looms.
Crompton & Knowles Loom Wks
Draper Corporation.
Fletcher Works.
Saco-Lowell Shops.
Schaum & Uhlinger.
Schofield Wm. & Co.
Stafford Co., The
Whitin Machine Works.

Lumber.
Nashville Hardwood Flooring Co.

Lubricants.
Dixon, Jos., Crucible Co.
Kellogg & Co., E. H.
N. Y. & N. J. Lubricant Co.
Swan & Finch Co.

Lubricators.
Lunkenheimer Co.
N. Y. & N. J. Lubricant Co.

Lug Straps.
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Marking Pots, Stencils, Inks, Etc.
Atlanta Stamp & Stencil Wks.
Bradley Mfg. Co., A. J.

Mercerized Yarns.
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Mercerizers.
Home Bleach & Dye Works.

Mercerizing Machinery.
Butterworth, H. W. & Sons Co.
Textile Finishing Machinery Co.

Metal Ceilings, Etc.
Lupton's Sons Co., David.

Metal Workers—Sheet.
Lombard Iron Works & Supply Co.
Howard & Morse.
Page Steel & Wire Co.
Pittsburgh-Des Moines Steel Co.

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Darley & Co., W. S.
General Electric Co.
Tagliabue Mfg. Co., C. J.
Taylor Instrument Co.
Western Electric Co.
Westinghouse Elec. & Mfg. Co.

Meters (Revolution).
Taylor Instrument Co.

Mill Baskets and Boxes.
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Mill White Paint.
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Motors and Generators—Electric.
Allis-Chalmers Mfg. Co.
Carter Electric Co.
General Electric Co.
Seeger-Walraven Co.
Western Electric Co.
Westinghouse Elec. & Mfg. Co.

Mule Stands.
Transmission Ball Bearing Co.

Oils—Finishing.
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Oils—Lubricating.
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Bradley Mfg. Co., A. J.

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Openers for Cotton, Wool, Waste Etc.
Saco-Lowell Shops.
Schofield Co., Wm.
Smith & Furbush Mach. Co.
Whitin Machine Works.

Oxidizing Machinery.
Phila. Drying Machinery Co.

Oxygen.
Bird Wilcox Co.
Oxweld Acetylene Co.

Packings.
Goodyear Tire & Rubber Co.
Graton & Knight Mfg. Co.

Paint.
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Chaffee, Thos. K.
Detroit Graphite Co.
Du Pont de Nemours & Co., E. I.
Peaslee-Gaulbert Co.
Sherwin-Williams Co.

Paint—Preservative and Fireproof.
Barrett Co.
Detroit Graphite Co.
Du Pont de Nemours & Co., E. I.
Peaslee-Gaulbert Co.
Sherwin-Williams Co.

Paint—Mill White.
Chaffee Thos. K.
Detroit Graphite Co.
Du Pont de Nemours & Co., E. I.
Peaslee-Gaulbert Co.
Sherwin-Williams Co.

Paper.
Groveton Paper Co., Inc.

Paper—Oil.
Bradley Mfg. Co., A. J.

Perforated Metal.
(See Screens and Sieves.)

Phonographs (Dictating).
Columbia Graphophone Co.

Pianos.
Stieff, Inc., Chas. M.

Picking Machinery.
Howard & Bullough, Am. Machine Co.
Saco-Lowell Shops.
Schofield Co., Wm.
Smith & Furbush Mach. Co.
Whitin Machine Works.

Pickers—Curled Hair.
Schofield, Wm. Co.
Smith & Furbush Mach. Co.

Pickers—Leather.
Garland Mfg. Co.

Picker Sticks.
Garland Mfg. Co.

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Lunkenheimer Co.

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Seeger-Walraven Co.

Playground Equipment.
American Playground Device Co.
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Hill-Standard Co.

Power Transmission.
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American Supply Co.
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General Electric Co.
Goodyear Tire & Rubber Co.
Graton & Knight Mfg. Co.
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Link-Belt Company.
Morse Chain Co.
New Departure Mfg. Co.
Seeger-Walraven Co.
Transmission Ball Bearing Co.
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Williams & Sons, I. B.

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Diamond State Fibre Co.

Presses.
American Laundry Machnry. Co.
Bridge & Co., Ltd., David
Butterworth & Sons Co., H. W.
Economy Baler Co.
Phila. Drying Machine Co.
Reliance Machine Works.
Seeger-Walraven Co.
Smith & Furbush Mch. Co.
Textile Finishing Machinery Co. The

Pulleys.
American Pulley Co.
Cresson-Morris Co.
Link-Belt Company.
Seeger-Walraven Co.
Transmission Ball Bearing Co.

Pulley Covering.
Goodyear Tire & Rubber Co.
Williams & Sons, I. B.

Pumps.
Allis-Chalmers Mfg. Co.
Collins, J. D.
Seeger-Walraven Co.
Textile Finishing Machinery Co.
Walsh & Weidner Boiler Co. The
Toomey, Frank.
Westinghouse Elec. & Mfg. Co.

Pump Valves.
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Psychrometers (Sling.)
Taylor Instrument Co.

Pyrometers.
Tagliabue Mfg. Co., C. J.
Taylor Instrument Co.

Railings.
Dufur & Co.

Railways—Industrial.

Recording Instruments.
Tagliabue Mfg. Co., C. J.
Taylor Instrument Co.

Reeds.
American Supply Co.
Emmons Loom Harness Co.
(See Trucks—Electric.)

Reels.
Crompton & Knowles Loom Wks.
Draper Corporation.
Saco-Lowell Shops.
Schofield, Wm. Co.
Whitin Machine Works.

Reflectors (Lamp)
Ivanhoe-Regent Works.

Regulators—Pressure
Tagliabue Mfg. Co., C. J.
Taylor Instrument Co.

Regulators—Temperature.
Tagliabue Mfg. Co., C. J.
Taylor Instrument Co.

Repairing—Textile of all kinds.
General Machine Works.
Southern Spindle & Flyer Co.

Rib Top Cutters.
General Machine Works.
Wildman Mfg. Co.

Ring Travelers—Steel and Bronze.
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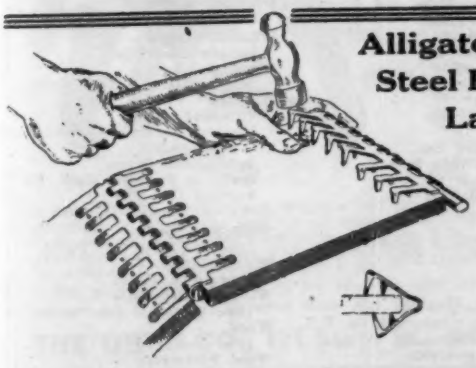

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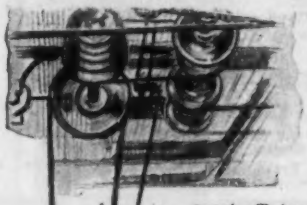

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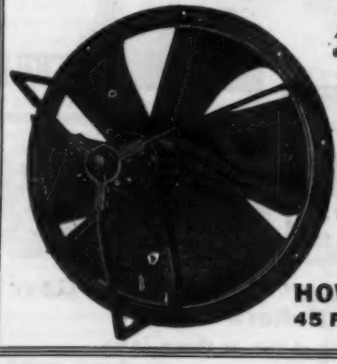

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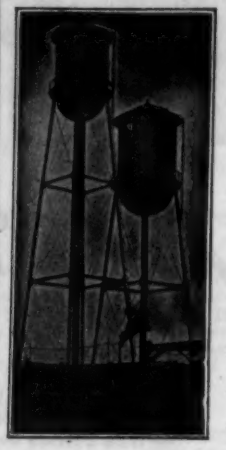

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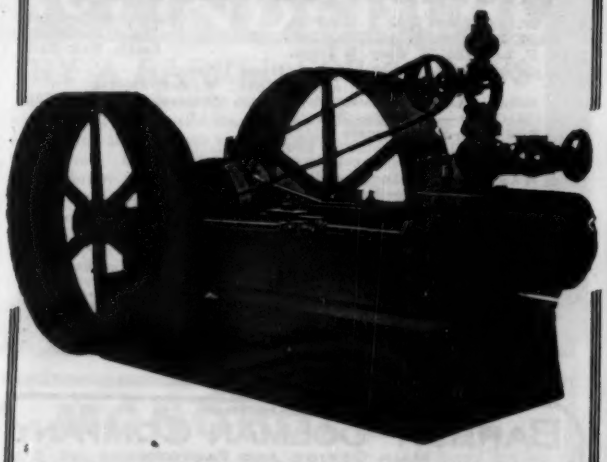

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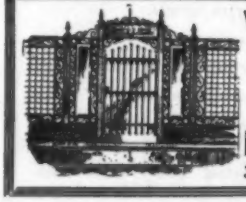


WIRE RAILINGS
WINDOW GUARDS
WIRE CLOTH.
Established 1835.
DUFUR & CO.
309 N. Howard St., Baltimore, Md.

B C
TRADE MARK
BARBER-COLMAN COMPANY
MAIN OFFICE AND FACTORY
ROCKFORD ILL
BOSTON, MASS. GREENVILLE, S.C.
WARP TYING MACHINES
HAND KNOTTERS FOR SPOOLING AND WINDING

GUMMED TAPE AND MOISTENING MACHINES
ESPEIALLY PREPARED FOR
SLASHER MACHINES
WRITE US FOR PRICES AND SAMPLES
ACME GUMMED PRODUCTS CO., 10-14 Tift Street, ATLANTA, GA.

STENCILS FOR COTTON SHIPPERS, COTTON MILLS, MERCHANTS & MANUFACTURERS—ALSO BRUSHES, INK, MARKING POTS
RUBBER STAMPS, NOTARIAL, CORPORATION SEALS
ATLANTA RUBBER STAMP & STENCIL WORKS
OFFICE 33 LUCKIE ST. WORKS 350 EDGEWOOD AVE.
P.O. BOX 834 OLDEST STENCIL AND STAMP HOUSE IN GEORGIA ATLANTA, GA.

Cincinnati's Cordial Welcome to Visitors

IS BEST EXEMPLIFIED AT THE

Hotel Sinton

INTERNATIONALLY FAMOUS FOR PERFECT

Cuisine!
Comfort!
Courtesy!

Centrally Located

Library of Popular and Standard Works

After-Theatre Entertainment Facilities

Rates $2.00 per day and upward

Unexcelled Convention

Management: JOHN L. HORGAN

Offers An Attractive Monthly Rate

For Rooms or Apartments for the Winter
WE CAN ASSURE YOU OF
WARMTH AND COMFORT
In the most homelike atmosphere offered by a Hotel anywhere
COURTEOUS SERVICE IS GUARANTEED
We operate four Cafes, where the prices are reasonable and the service will be satisfactory to you.
CAFTERIA PAR EXCELLENCE
SELF SERVICE
MEN'S GRILL
JAPANESE WAITERS
ROSE AND CASCADE ROOMS
COLORED WAITERS
MANDARIN ROOM
JAPANESE WAITERS
We have recently reorganized our entire food service and are making an enviable record for modest charges and conteous and efficient service.
TRY US FOR LUNCHES AND BANQUETS.
HOTEL TULLER.

ANTI-CORROSIVE
CYLINDER OIL

TRY A BARREL FOR 60 DAYS

If it does not come up to your standard of what a good lubricating oil should be, and you consider that it is not worth our price—put your own value on it and remit on that basis. Isn't that a fair proposition? "A. C. C." will pare down your oil and cylinder repair bills—save your piston packing, too. It has been doing this for forty years, it will effect such a saving now—just give "A. C. C." a chance.

May we go into the subject with you?

ANTI-CORROSIVE CYLINDER OIL MANUFACTURED ONLY BY E. H. KELLOGG & CO.

E. H. KELLOGG & CO.
243 SOUTH ST. NEW YORK

BETTER RESULTS FROM YOUR EQUIPMENT

You may have been doing your work week after week in the same way, believing that you were getting the bes possible results. But this is a mighty swift age and new methods of doing things are being invented day after day—methods which help you get better results from your machinery, your employes, your entire equipment.

These are methods you should know about—they are always advertised and in such a way that it's a rare advertising page that will not yield one good suggeston to you.

Suppose you read the advertising pages of this issue thoroughly and see how many methods suggest themselves to you by which you could make a much better showing, by which you could save time and expense—then act.

MONOPOLE OIL

U. S. Pat. 861397 Serial 367303

Special Sizing and Finishing Products for Cotton, Wool and Silk.

CREAM SOFTENER
SOLUBLE OILS
BLEACHING OIL
SULPHUR BLACK
LEVULINE
GLASGOW SIZING
HYDROSULPHITES FOR ALL PURPOSES

JACQUES WOLF & CO.

Manufacturing Chemists and Importers
Main Office and Works, PASSAIC, NEW JERSEY.
New York Office: 100 William Street.
Western Representatives, United Indigo & Chemical Co., Ltd., 218 West Kinzie St., Chicago, Ill.

Classified Opportunities.

Positions Wanted

WANTED—Position as overseer of carding, or assistant superintendent in large mill; or superintendent in small mill. Have been overseer a little over nine years and understand all grades of cotton and machinery. Am 34 years old and married. Desire position in South. Can furnish excellent references. Address Box 300, care COTTON, Atlanta, Ga.

Young man, 31 years of age, married, with 12 years experience in mills and office, textile graduate, desires permanent position in cost and efficiency department of cotton mill. Good references. Address G-95, care Cotton, Atlanta, Ga.

WANTED—Position as Overseer of Carding. 25 years experience. Specially strong in yarn mill work and have had wide experience on combed work. Prefer South. Address Box 355 care COTTON, Atlanta, Ga.

Positions Open

Wanted—Salesmen

Salesmen calling on the textile mills, and interested in new lines of machinery, paints, building supplies or chemicals, either as a side line or exclusively will find it profitable to write, giving experience, territory covered and other details. Correspondence strictly confidential. All letters acknowledged. Cotton, 1021 Grant Building, Atlanta, Ga.

RATES:

WITHOUT DISPLAY.

"Positions Wanted" 3 cents per word per insertion. Minimum charge 50 cents. Payable in advance.

"Positions Open" and other undisplayed advertisements, 4 cents per word per insertion. Minimum charge $1.00. Payable in advance.

(When replies are to be received in our care, allow four words for box address.)

DISPLAYED.

"For Sale" and all other advertisements using bold-face type or otherwise displayed, $2.00 per inch per insertion.

Rates for larger spaces furnished on application.

Miscellaneous

An old established firm in New York City having an annual consumption of approximately 1,500,000 yards Cotton Duck is desirous of making direct connection with a mill or mills of capacity in excess of quantity mentioned.

ADDRESS: X. Y. Z., care Cotton, Atlanta, Ga.

Have You?

Have you any proposition to put before the executives in the textile mills of the South? Anything to sell or buy that they may want or have? Do you want a better position or do you want a good man to fill a position?

Whatever your message, this "Classified Opportunities section of COTTON is the logical place for the announcement of your requirements.

It's the meeting place for Employer and Employee, and a good salesman in print for anything you want to dispose of.

A little ad. won't cost much. Try it for a month or so.

For Sale.

New and Second Hand

ENGINES

Corliss Automatic and Slide Valve

BOILERS

Pumps, Hoisting Engines, Gas and Gasoline Engines.

MACHINE TOOLS

Lathes, Planers, Shapers, Drill Presses, etc.

WOOD WORKING

Planers, Molders, Band Saws, etc.

ELEC. MACHINERY

Dynamos and Motors

AND SUPPLIES OF ALL KINDS

FRANK TOOMEY, Inc.,

127-31 N. Third St.

Philadelphia, - Pennsylvania

BARGAIN IN FINE TOOLS.

The following tools are from a private set and have seen little, and in some instances, no usage. The prices shown are the regular list price which will be discounted 33 per cent on single tools or a special price made on the whole outfit. Tools will be shipped by express C. O. D. with privilege of examination:

1 height gauge attachment, $1.75.

1—Brown & Sharpe Vernier depth gauge, No. 600, $12.00.

1—8″ Brown & Sharpe Vernier height gauge No. 585, $31.75.

1—10″ Brown & Sharpe Vernier caliper No. 570, $25.75.

1 Brown & Sharpe inside micrometer caliper No. 254, 1″ to 2″, $7.15.

All these tools are in cases except the height gauge attachment.

Apply to Box 17, care COTTON.

Commission Merchants, Yarn Dealers, Cotton Dealers, and Brokers, Etc.

H. Ray Paige. J. A. Mandeville H. G. Welborn J. H. Schoolfield

Southern Cotton Yarn Co., Inc.

1 Madison Avenue, New York City

SELLING AGENTS FOR

SOUTHERN MILLS

Carded—Combed Yarns

4's TO 120's SINGLE AND PLY

Selling Direct to Consumer.
NEW ACCOUNTS SOLICITED.

Taylor, Clapp & Beall

COMMISSION MERCHANTS

109-111 Worth St., New York

Bleached Shirtings, Cambrics and Long Cloths
Wide Sheetings, Sheets and Pillow Cases

Lonsdale Jeans
Utica Sheets, Bolsters and Pillow Cases
Lonsdale Co.'s Printed Madras

Blackstone Mfg. Co.'s White, Printed and Woven Colored Madras.

AGENTS FOR THE FOLLOWING MILLS:

Lonsdale Company
Blackstone Mfg. Company
Hope Company
Berkeley Company
Utica Steam and Mohawk Valley Cotton Mills

A Full Line of BLEACHED and BROWN COTTONS in special finishes and put up
FOR EXPORT

ESTABLISHED 1872

H. & B. BEER

NEW ORLEANS

HENRY BEER EDGAR H. BRIGHT
J. WILLIAM BARKDULL C. MORGAN ABRAMS

MEMBERS OF

New Orleans Cotton Exchange
New Orleans Future Brokers Association
New York Stock Exchange
New York Cotton Exchange
New York Coffee Exchange
New York Produce Exchange
Chicago Board of Trade

Associate Members of the Liverpool Cotton Association

Private Wires to Principal Points

Weimar Bros.

Phone Connections
Works, 2046-48 Amber Street,
PHILADELPHIA, PA.

MANUFACTURERS OF

Cotton Mercerized Tapes, Spool Tapes, Bindings and Narrow Fabrics for Underwear and other Trades.

KALI MANUFACTURING CO.

JAMES A. BRANEGAN, President

K M C TRADE MARK K AL I

S. G. DAVENPORT, Secretary.

MANUFACTURING CHEMISTS

1404-1410 FRONT STREET PHILADELPHIA, PA.

HYDROXY

TRADE MARK REGISTERED

Hydroxy Scouring Oils

Hydroxy Kier Oil

Removes Mineral Oil Stains from Cotton.

Hydroxy Turkey Red Oil

Produces a deep soft black on sulphur dyed goods. Removes the bronzy color.

Kali Chlorine Neutralizer prevents tender bleached goods

(Endorsed by Leading Bleachers.)

HUGHES FAWCETT

IMPORTER AND COMMISSION MERCHANT

LINEN YARNS

For Weaving, Knitting and all Purposes

TURKEY RED YARNS

For Towel Borders, Towellings and Bleaching Cloth

Linen Jacquard Harness Twine

And Every Description of Linen Thread and Twine

115 Franklin Street, : NEW YORK

CARVER-BEAVER YARN CO., Inc.

Successors to A. D. SALKELD & BRO., Inc.

ALL NUMBERS COTTON MERINO YARNS ALL COLORS WOOL WORSTED

366 BROADWAY, NEW YORK

WOODWARD, BALDWIN & CO.

DRY GOODS

COMMISSION MERCHANTS

43-45 WORTH STREET, NEW YORK

Soluble Grease

To make the stock yarn or warps Run Smooth, regardless of dyes that make the Cotton Fibre harsh.

BOSSON & LANE

ATLANTIC MASS.

Douglas
Textile Starches

Douglas Crown Brand

Douglas Lion Brand

Douglas Atlas Brand

Douglas Hercules Brand

Douglas Warp Sizing

These starches are manufactured by standardized methods, which insure purity and uniformity.

A constantly increasing number of manufacturers are getting satisfactory results by using our starches which are especially adapted for their use.

Douglas Company

Manufacturers of Corn Products

Cedar Rapids, Iowa

SOUTHERN OFFICE
Greenville, S. C.,
Masonic Bldg.

EASTERN OFFICES
New York, 15 Park Row.
Boston, 50 Congress St.
Philadelphia, 10 Chestnut St.

ZAVON

ZAVON is a solvent for the textile industry. It can be used on all kinds of animal and vegetable fibre with absolutely no injurious effect on the fibre or the receptacle in which it is used.

The knit goods trade particularly are constantly troubled with oil spots, dirt and graphite, some mills getting as high as 30% spots in hosiery, while the underwear manufacturer is almost as badly off.

Soap will remove light vegetable oils, but is not satisfactory for the mineral oils and is worse than useless for graphite.

Zavon is the natural solvent for such foreign matter. It contains one of the most powerful solvents known, and its action on fats, oils, and waxes is almost instantaneous. **Zavon** will reduce your spot account 99% at a very slight cost. It gives a better hand and body to the goods than any other similar product in use today and the unevenness of shade to the finished dyed fabric due to improper circulation and penetration is reduced to a minimum where **Zavon** is used in the preparatory treatment.

We shall be glad to furnish a sample for trial on request.

ZAVON, Inc., 413 Baltic St., Brooklyn, N.Y.

AV Z ON
TRADE MARK

THE TEXTILE SOLVENT

The Grasselli Chemical Company

"Dyestuff Department"

Works at Grasselli, N. J.

Albany, N. Y. { *Formerly Owned by*
Providence, R. I. { *The Bayer Co., Inc.*

SULPHUR COLORS: Black, Blue, Brown, Green

Direct Cotton Colors, Acid and Chrome Colors

MONOPOL OIL

Bichromate of Soda ***Sodium Sulphide***

BRANCH OFFICES:

New York	Philadelphia	Birmingham, Charlotte	Boston
Chicago	Cleveland	Cincinnati	St. Louis
Detroit	New Orleans	Milwaukee	St. Paul, Providence

The GRASSELLI CHEMICAL CO., Limited

Toronto **Hamilton** **Montreal**

STOCKS CARRIED AT ALL PRINCIPAL POINTS

LEVINSTEIN

THIONOL

FAST SULPHUR

COLORS

THIONOL colors produce at low cost a comprehensive line of fashionable and bright shades which are fast to light, washing and cross-dyeing.

I. Levinstein & Co. Inc.

74 INDIA STREET, BOSTON, MASS., U. S. A.

Ask for samples of

Thionol Brilliant Green 4 G.X.
Thionol Green D.Y.
Thionol Red Brown 4R.

These dyes are made in England by Levinstein, Ltd.

We can also supply

SULPHOGENE COLORS

made in America by E. I. du Pont de Nemours & Co.

LEVINSTEIN

ATLANTIC DYESTUFF COMPANY

We believe and therefore assert that we make the best and the largest amount of

SULPHUR BLACK

AND

SULPHUR BLUE

produced in the United States.

To any actual consumer doubtful of this we will send free, express prepaid, a ten pound sample for actual testing.

We also make excellent

DIRECT COLORS, Etc.

Stocks carried in New York, Boston and Philadelphia

ATLANTIC DYESTUFF COMPANY

88 Ames Building, BOSTON, MASS.

Factory:
Burrage, Mass.

New York Office:
230 West 13th Street.

Starch

EFFICIENCY and ECONOMY are the watch-words today. Modern mill men who hold to this motto are discarding ordinary, imperfectly refined starches and selecting those special types best suited for their individual conditions.

Some desire increased weight, all need increased strength and better weaving qualities for the warp.

You know the result you seek. We know and can provide the proper type of Starch.

Eagle Finishing

C. P. SPECIAL FAMOUS N

BLEACHING and FINISHING PLANTS have learned that "any old" STARCH or DEXTRINE will not do the work. To secure the proper "feel", the desired weight, the attractive finish, careful discrimination must be exercised in selecting

STARCHES AND DEXTRINES

We manufacture all approved varieties.

500 MILL 400 MILL

BLUE RIVER CRYSTAL
DEXTRINES and GUMS

Corn Products Refining Co.

New York

Southern Office *Greenville, S. C.*

Starch

Dicks, David Co. Inc.

We Have a Good Line of
BASIC, DIRECT, OIL, SULPHUR CHROME and ACID COLORS

Ask for dyed and product samples and let us prove our contentions.

Stock of Sulphur Black carried in Charlotte, N. C., and Atlanta, Ga., for quick deliveries.

BEN R. DABBS, SOUTHERN MANAGER

Charlotte, N. C.

Main Office, 299 Broadway, New York City

Charlotte, N.C.

FRANK HEMINGWAY, Inc.

115 Broadway, New York City

DYESTUFFS INTERMEDIATES CHEMICALS

SULPHUR BLUE R Conc.	VICTORIA BLUE B Conc.
CHRYSAMINE	AURAMINE O
SULPHUR BLACK	MALACHITE GREEN CRYS.
DIRECT FAST YELLOW 2G	DIRECT BROWN B
DIRECT FAST PINK Y	DIRECT BLUE 2B
DIRECT FAST ROSE B	DIRECT GREEN B

Quality of all shipments guaranteed.

Our Laboratory will solve your dyeing problems.

Factory: Bound Brook, N. J.

Branches: 10 High St., Boston, Mass.
15 Seething Lane, London, Eng.
N. Y. Warehouse: 27 Thames Street.

Newbert Color Company

MANUFACTURERS OF:

COTTON SOFTENER
SOLUBLE OIL
SPECK DYE
INDIGO EXTRACT
STEAM BLACK
ACETATE OF CHROME
ACETATE OF ALUMINA

SELLING AGENTS FOR:

The Stamford Extract Mfg. Co., New York

HEMATINE
LOGWOOD EXTRACT
BLACK DYE
FUSTIC EXTRACT
CUTCH EXTRACT
QUEBRACHO EXTRACT
HYPERNIC EXTRACT
OSAGE ORANGE
FUSAGE EXTRACT
GAMBIER EXTRACT
MYRABOLAN EXTRACT

W. F. SYKES & CO., NEW YORK

American Agents for ST. DENIS DYESTUFF & CHEMICAL CO., FRANCE

Aniline and Alizarine Colors

WILLIAM PETTUS MILLER, MILFORD, VA.

Sumac Extract

THE YANCEY BARK CO.

Charlottesville, Greenwood and Fredericksburg, Va.

Chestnut Oak Bark and Chestnut Wood Extracts

WARNER CHEMICAL WORKS, Warner N. H.

Black Iron Liquor

Offices. 88 Broad Street, BOSTON.
81 Beecher Street, ATLANTA, GA.
Mr. W. H. Bolen, Southern Representative.

Laboratory: 113 Broad Street, BOSTON.
Warehouse: 95 Wendell Street, BOSTON.
Factory: SOUTH BOSTON, MASS.

VICTOR MILL STARCH

The Weaver's Friend

It boils thin—it penetrates the warps—increases breaking strength and carries the weight into the cloth. Being thoroughly washed free of gluten and other foreign matter it gives a bleach and finish to the goods that you can get from no other starch.

A trial order will convince you that VICTOR STARCH has no equal on the market.

THE KEEVER STARCH COMPANY, Columbus, Ohio

Southern Agent: MR. JAMES H. MAXWELL, Greenville, S. C.

If you are not already using VICTOR STARCH call on our representative for a demonstration at your convenience

DU PONT AMERICAN INDUSTRIES

DU PONT DYESTUFFS

Du Pont American Dyestuffs

for TEXTILES, PAPER, PAINTS, LEATHER *and* PRINTING INKS

The Du Pont oval stands for over a century's experience in the manufacture of products with the prestige of leadership in every chosen field. It is your guarantee of the excellence and dependability of Du Pont American Dyestuffs.

Dyestuffs Sales Department:

E. I. du Pont de Nemours & Co.

Home Office:

WILMINGTON, DELAWARE

Plants, warehouses and sales offices in the principal business centers.

Principal Du Pont Products

For information address Advertising Division, Du Pont, Wilmington, Delaware.

DYESTUFFS: Coal Tar Dyestuffs and Dyestuff Intermediates. CHEMICALS: Pyroxylin Solutions, Ethers, Bronzing Liquids, Acids, Tar Distillates, Alums, Etc. EXPLOSIVES: Industrial, Agriculture and Sporting. LEATHER SUBSTITUTES: Fabrikoid, Rayntite Top Material, Fairfield Rubber Cloth. PYROXYLIN PLASTICS: Transparent, Shell and Ivory Py-ra-lin, Py-ra-lin Specialties. CLEANABLE COLLARS AND CUFFS, PAINTS, VARNISHES, PIGMENTS, LITHOPONE, COLORS IN OIL, STAINS, FILLERS, LACQUERS AND ENAMELS.

DU PONT

FAST DYES FOR COTTON

Now Produced in America

Indigo N. A. C. 20% Paste
Alizarine N. A. C. 20% Paste
Carbanthrene Blue
Carbanthrene Olive G.
Diazine Black H. Ex.
Sulphur Blacks
Sulphur Brown 2 G.
Sulphur Brown 4 G.
Sulphur Brown T. D.
Sulphur Brown C. G.
Sulphur Blue L.
Sulphur Blue S. A. P.
Sulphur Yellow B. W.
Primuline N. A. C.
Developed Blues, Blacks, Reds

Bring us your dyestuff problems. Our technical department and the well equipped laboratories at our different branches are maintained for the service of our customers. Our advice involves no obligation on your part.

National Aniline & Chemical Company
Incorporated
Main Sales Office: 21 Burling Slip, New York
Southern Office and Warehouse
236 West First Street, Charlotte, N. C.

Established 1870 *Incorporated 1890*

The Warren Soap Manufacturing Company

77 Summer St. Boston, Mass.

UCPC

United Chemical Products Corporation
Importers, Exporters and Manufacturers
York and Colgate Streets, Jersey City, N. J.
Aniline Colors
Acid, Direct, Basic, Chrome and Sulphur
Chemicals
Softeners and Gums
Weighting Materials
Bleachers Blue
Soaps
Sumac, Hematine, Logwood, Etc.
INQUIRIES SOLICITED
Southern Representative
Mr. R. T. Grant, 198 West Peachtree St., Atlanta, Ga.

To the Textile Trade

The period of readjustment from a war to a peace basis, which today confronts the textile mills of America, involves many problems—particularly those concerned with the supply of needed dyestuffs—in the solution of which the house of A. Klipstein & Company is qualified to be of material assistance.

For 46 years we have been engaged in supplying the needs of the textile manufacturers of America for dyestuffs, sizings, finishers and all allied chemicals.

During this period our business has steadily increased in volume and our commercial connections have been constantly extended. Today we have agencies in practically every market of the world and our own salesmen cover the United States and Canada.

This development has resulted from our consistent adherence to sound business methods—quality products, careful service and fair prices have been the keynote of our success.

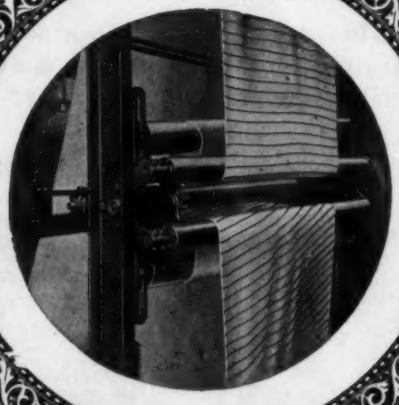
Through our affiliated concerns, E. C. Klipstein & Sons Company and the Bulls Ferry Chemical Company, we have been prominent in the development of an American Dyestuff Industry. Through our associates, the Society of Chemical Industry, in Basle, Switzerland, we have been able to supply many of the demands for colors which it has not, as yet, been possible to manufacture successfully in America.

We now extend to the textile mills of the United States and Canada the assistance and co-operation of our organization in solving post-war problems. Our well equipped laboratory and our excellent corps of chemists are at your disposal. Our exceptional sources of supply will facilitate the filling of your requirements for dyestuffs and textile chemicals of every character.

A. KLIPSTEIN & COMPANY

644-652 Greenwich Street, New York City

Philadelphia Charlotte Providence
Boston Chicago



CROOKED wefts are costly in "Seconds"—so is the labor necessary to keep them running straight.

The "L. & L."
Combination Weft Straightener and Compensator
(Patented)

requires so little attention, merely that of a boy engaged on other work, that it is practically costless in operation.

Send for the "L & L" Book.

H. W. BUTTERWORTH & SONS CO.

Established 1820

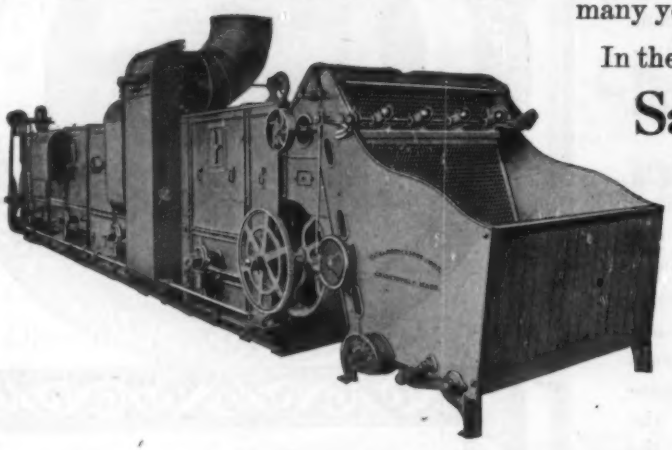
PHILADELPHIA

Providence Office: Turk's Head Building.
Canadian Representative: W. J. Westaway Company, Hamilton, Ontario, Canada.

FINISHING
Butterworth
MACHINERY

SARGENT DRYERS mark progress in Dryer Development comparable to that made in other fields of mechanical endeavor.

They are favored with a natural preference because they are designed on basic principles of air circulation, conveying, and general drying apparatus construction, which have had the approval of discriminating mill men and drying engineers for many years.



In the

Sargent Dryer

these principles have been combined and refined, making a complete machine which is unexcelled.

For drying cotton, linters, wool, hair, flax and other classes of raw material.

C. G. SARGENT SONS Corp., GRANITEVILLE MASS.

FRED H. WHITE, Southern Agent, Charlotte, N. C.

Slashing Costs Slashed

by using

Amalol and Liberty Gum

in your size

These two "Amalie" Brand Textile Products boast of numerous users among the South's leading cotton mills.

You Can Be Sure That

1. The tensile strength of the fibre will be increased 15 to 20%.
2. Shedding and mildew will be wholly eliminated.
3. Better and more uniform whites will be obtained.

L. SONNEBORN SONS, Inc.

Textile Department
262 Pearl St., New York, U. S. A.
Branches in all important cities.
Also Manufacturers of "Amalie" Lubricating Oils and Greases

HOLLAND ANILINE CO.

HOLLAND, MICH.

Manufacturers of

Basic and Sulphur Colors

Holland Methylene Blue BB
Holland Methyl Violet B
Holland Safranine BL
Holland Basic Brown Y-R.-RR
Holland Basic Blue BB-R. RR
Holland Sulphur Brilliant Blue
Holland Sulphur Dark Brown
Holland Sulphur Yellow Brown

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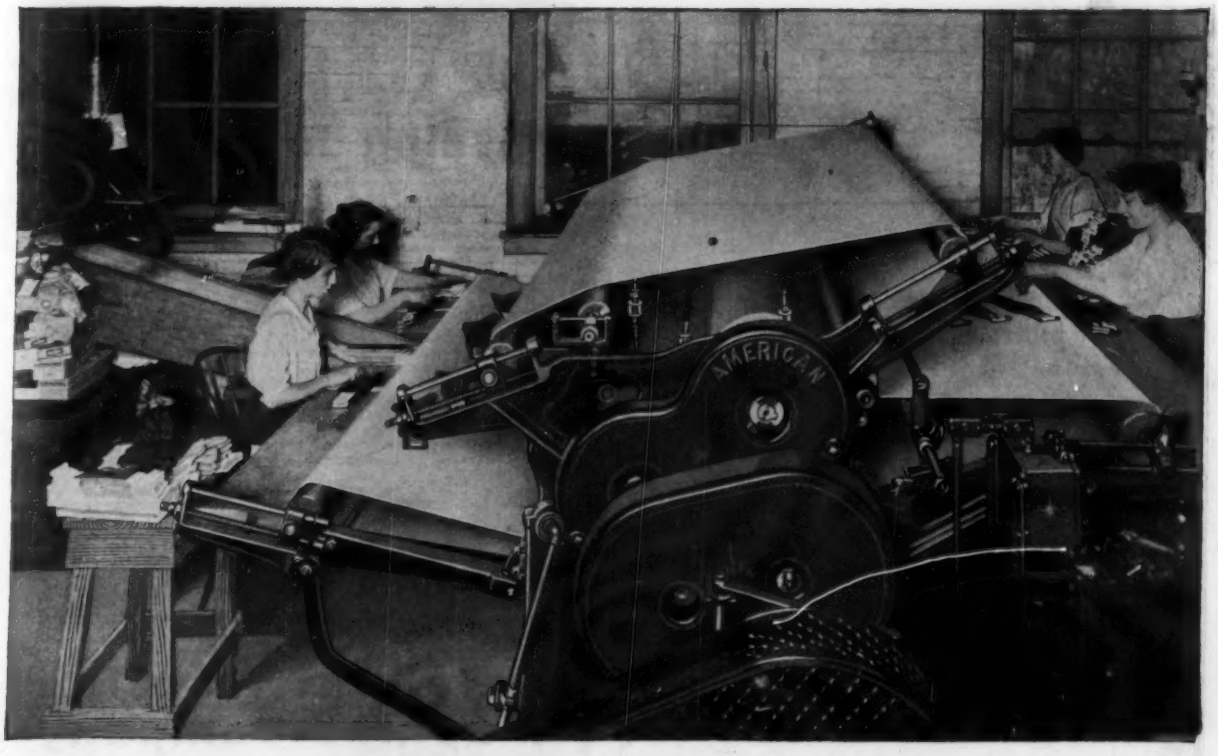


The easiest Job in the Mill

That is what the American Rotary Hosiery Press has done for the pressing work in this progressive plant. It has made it the easiest job in the mill. Quite a contrast from the heavy work of the old-style plate press.

Here four girls sit in comfort at the machine, and press the entire output of the mill. All handling and mussing of hosiery after pressing is done away with. For the hose are ticketed and paired before they are pressed.

Then a conveyor belt—running from the receiving side of the press—carries the hose, gathered into half-dozen lots, right to the packers—ready to pack.

The American Rotary Hosiery Press will prove a good investment in your mill — just as it is doing in dozens of mills today. It saves time and labor—we have records where it reduces the pressing costs 66%. And, better still—it gives the hose a better finish—a finish that appeals to the buyer.

Let us send you complete information.

The American Laundry Machinery Co., Specialty Dept., Cincinnati, Ohio

H. G. MAYER,
Southern Textile Agent,
Realty Bldg.,
Charlotte, N. C.

Also Manufacturers of
The Automatic Underwear Press —Hydro Extractor — Rotary Fulling & Dyeing Machines— American Knit Fabric Ironer.

DRYERS for PROFIT

30% New Business
70% Repeat Orders

IF you "discovered" a dryer to just fit your individual needs; that would give you a better product, and more of it at a lower cost,—wouldn't you swear by it?

That's just what users of PROCTOR DRYERS do,—and back it up with repeat orders.

HERE'S what happened in the middle West. During the last four years a good number of PROCTOR DRYERS were installed throughout that territory, and

70% of the total went to concerns where **PROCTOR DRYERS** were already in service, and—

30% of the total went to those who had just "discovered" the **PROCTOR.**

"Proctor" DRYERS

Will safeguard your profits.
Some 4000 now on the job.

Sold with an absolute guarantee.

Philadelphia Textile Machinery Company

Seventh Street and Tabor Road

Philadelphia, Pa.

Chicago, Ill. Heart Building — Charlotte, N. C., Realty Building — Providence, R. I. Howard Building
Hamilton, Ont., Can., W. J. Westaway, Sun Life Bldg.

DELAHUNTY Dyeing Machiner

THE first revolving cylinder dyeing machine made and operated in this country was manufactured by the Delahunty Dyeing Machine Company. Since the year 1880 we have given to the textile industry many superior machines for dyeing, bleaching and oxidizing raw stock cotton, waste stock, linters and articles of knitted construction.

In our circulating machines, sulphur and cold vat colors are dyed with perfect success. The Brandwood System of dyeing warp on beams, as used in the works of the Elton Cop Dyeing Co., of Bury, England, has been delegated solely to this establishment for the manufacture and sale in the United States. This machine will dye at one operation one to twelve beams of indigo, hydron, indanthrene and other oxidation colors, besides possessing other valuable features which aid production and lower the cost of dyeing.

The machines of our manufacture of greatest import to the textile industry are:

Revolving Cylinder Raw Stock Dyeing Machinery.

Revolving Cylinder Hosiery Dyeing and Bleaching Machines.

Hosiery, Oxidizing and Tom Tom Machines.

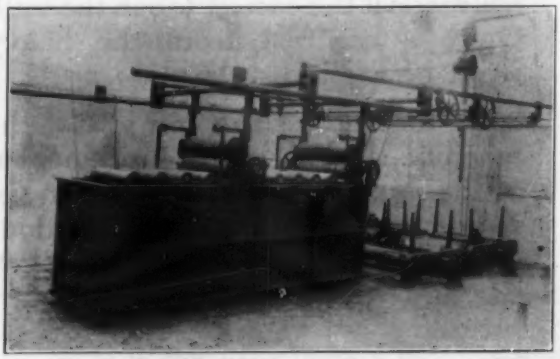
Special machines are made for aniline, sulphur, indigo and other vat colors.

Delahunty Dyeing Machine Company

Pittston, Pa.

COCKER

Two Compartment Warp Dyeing Machine



Machine illustrated above is our Two-Compartment Warp Dyeing Machine with all iron vat. Machine can be built with compartments of equal or of different capacities as desired—also with any type of delivery, from the Squeeze Rollers. This machine is equipped with baling attachments.

Correspondence solicited.

Cocker Machine & Foundry Co.

Builders of Warpers, Beamers, Warp Dyeing Machines and Reels.

GASTONIA, N. C.

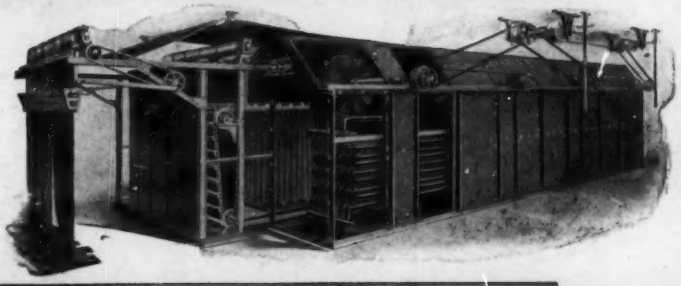
"HURRICANE" DYEING, DRYING AND FINISHING MACHINERY, PRESSES, ETC.

"Hurricane" Automatic Looping and Drying Machine for Underwear and Turkish Towels.

The "Hurricane" System of handling Underwear and Turkish Toweling in the roll, is in use by many prominent concerns in this country.

We are in position to design and install complete drying and bleaching plants.

A "Hurricane" Dryer for Every Material



THE PHILADELPHIA DRYING MACHINERY CO.
MAIN OFFICE AND WORKS, STOKLEY ST. ABOVE WESTMORELAND, PHILADELPHIA, PA.

Liquid E B G Chlorine

Try It in Your Mill

E. B. G. Liquid Chlorine marks a distinct advance in bleaching agents. **It is a 100% bleach.** Is easier to handle than bleaching powder, contains no sediment or sludge, is more efficient and means a considerable saving in freight charges.
No material changes in your present method of bleaching are needed to use it.
Send for full particulars and get posted to your advantage.

ELECTRO BLEACHING GAS CO., 18 East 41st Street, New York
Pioneers and Leading Manufacturers of Liquid Chlorine.

THE TEXTILE-FINISHING MACHINERY CO

MAIN OFFICE AND WORKS PROVIDENCE, R. I.
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Gas and Plate Singers
Bleaching Kiers
Washing Machines

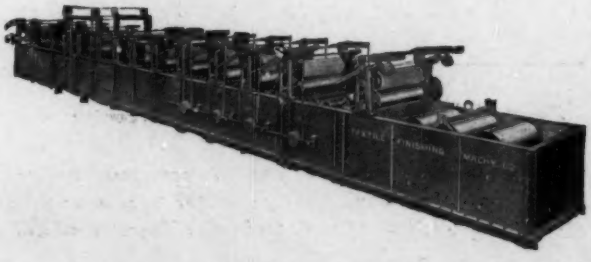
Machinery for Finishing Textile Fabrics and Warps

Tenter Frames
Sprinklers
Calenders

Squeezers
Scutchers
Water Mangles

Winders
Folders
Presses

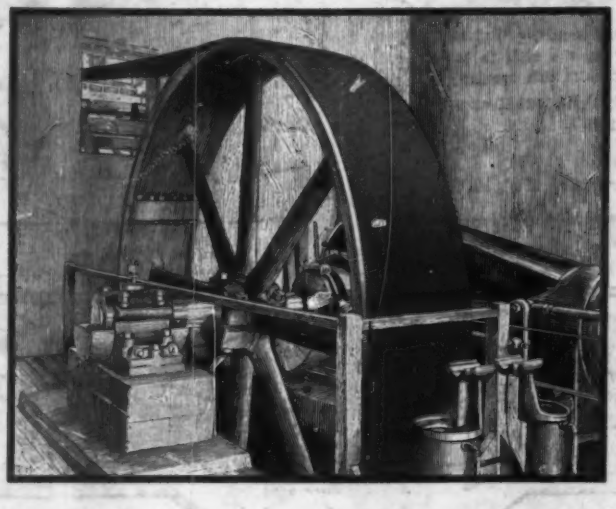
Drying Machines
Dyeing Machines
Padders
Jiggs
Starch Mangles



Slashers
Drying Cylinders for all purposes.
Warp Splitters.

Warp Mercerizing Machine

GRATON AND KNIGHT



GRATON AND KNIGHT

Nature's Contribution to Power

30-inch Neptune Double Belt, 91 feet long, driving mill of J. C. Halsema Mfg. Co., Jacksonville, Fla. This belt has been in operation five and one-half years, and is in as good condition as when first installed. It has given satisfactory service at an overhead charge of $2.17 per week, or a cost of five mills per horsepower per week.

It's the right material in the right place. Nature provided that material, worn originally on the back of a steer. A steer hide is *naturally* tough, strong, pliable, elastic. All of those characteristic virtues are retained to the right degree in Graton & Knight Standardized Tanning. That tanning is done to meet fixed requirements.

Leather stands hard usage. It has a bull-dog frictional grip. It keeps on taking the punishment of main drives and the side-slapping of shifters—and then comes back for *more*. Good belting must have tractable pliability. It must be firm. It must stretch and come back when required. It must be easy to splice and repair. Nothing beats leather for these characteristics. No belting beats Graton & Knight Standardized Series Leather Belts.

Every Graton & Knight Brand isn't recommended for *every* drive. The work to be done determines the belt to be used—that is the G & K Standardization idea. Power transmission requirements are confined to a few classes. There's a Standardized Belt for every class. The Neptune Double referred to above is one of them. There's a Standardized Belt for use wherever dampness or water is present or where belting is subjected to exposure to rain, snow and other unfavorable climatic conditions; and for excessive loads.

Many of the best belted plants ask us to specify the belting for every *pulley drive*. Try the plan yourself. Then, when buying, call for "Graton & Knight—Brand or equal." This won't commit you to buying our belts. It will put your buying on the one basic consideration—the work to be done.

Write for information about Standardization as applied to Belting.

THE GRATON & KNIGHT MFG. COMPANY, Worcester, Mass., U. S. A.

Oak Leather Tanners, Makers of Leather Belting, Lace Leather, Leather Packings and Specialties

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GRATON & KNIGHT Standardized Series LEATHER BELTING

Do you know that we have a thoroughly organized engineering department devoted to the interests of all belt users? We have—and it is one of the best in equipment and resources, in the country. You are invited to send us your problems for solution. The only fee involved is your good will.